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London Galvanised Iron Co. Ld
Mather & Platt, Ltd.
National Galvanizers Ltd.
Nicholls & Clarke, Ltd.
Shaw, M. T. & Co.
Young & Marten Ltd.

Tar (all kinds)—
Woods, Sons & Co.

Tar Boilers—
Phœnix Engineering Co. Ltd.

Terra Cotta—
Dennis, Henry
Hathern Station Brick Co., Ld.
Leeds Fireclay Co. Ltd.

Tiles—
Bomert, Teves and Blankley
Cope & Co
Dennis, Henry
Hodge, F., Ltd.,
Leeds Fireclay Co. Ltd.
Maw & Co., Ltd.
Minton Hollins & Co. Ltd.
Sankey, J. H. & Son, Ltd.
Walker, Chas. & Co.
White, Child & Beney, Ltd.
Wire, A. D. Ltd.

Timber—
Aston Grant & Co., Ltd.
Brown, H., Limited
Calder & McDougall, Ltd.
Ford, H. J.
Gilbertson & Son, Ltd.
Hall, L.
Jennings, C. & Co.
Leary, C. & Co.
Longbotham, J. & Co.
Longhurst, R. & Sons
Millar's Timber & Trading Co
Price & Low, Ltd
Priday, S.
Venesta, Ltd.

Tyres—
Bergougnan Tyre Co.
Dunlop Rubber Co. Ltd.
Michelin
North British Rubber Co.
Palatine

Underlining, &c.—
Engert & Rolfe Ltd.
McNeill, F. & Co. Ltd
Vulcanite, Ltd.
Willesden Paper & Canvas Wks

Ventilating—
Boyle, R. & Son
Dargue, Griffiths & Co., Ltd.
Ewart & Son, Ltd.
Haywards, Ltd.,
Keith & Blackman Co.
Kinnell, Chas P. & Co., Ltd.
Murray, S. D. & Co., Ltd.
Rosser & Russell, Ltd.
Sturtevant Engineering Co. Ld

Wall & Ceiling Covering—
Beaver Board Co., Ltd
Fiberlic
Machin & Kingsley, Ltd.
O'Brien, Thomas & Co.
Thames Mills
Venesta, Ltd.
Young & Marten Ltd

Waterproofing—
Adamite & Co., Ltd.
Building Products, Ltd.
Callender, G. M. & Co.
"Cure-e" Co.
Ebner, J. F.
Kerner-Greenwood & Co. (Pudlo)
Super Cement, Ltd.
Titon (Liverpool) Ltd.
Torbay & Dart Paint Co.

Wine Bins (Iron)—
Bayliss, Jones & Bayliss, Ltd.
Farrow & Jackson

Wire Screens—
Duke, Waring, Crisp & Co.
Johnson Clapham & Morris, Ld
Moriarty & Co. (1911) Ltd.
Parker, Winder & Achurch

Window Frames & Sashes
Braby, F. & Co Ltd.
Carron Company
Clark, Hunt, & Co. Ltd
Crittall Mftg. Co., Ltd.
Hayter, Ltd.
Haywards, Ltd
Williams & Williams, Ltd.

Wood Flooring—
Acme Flooring and Paving Co.
Ebner, J. F
Homan & Rodgers, Ltd.
Improved Wood Pavement Co.
Turpin's
Zeta Wood Flooring Co.

Wood Preservative—
Fuller, John H. & Co. Ltd.
Maclean Wm. Sons, & Co.
Major & Co., Ltd.
Reparo, Ltd.
Sterne, Ltd.

THE BUILDER

A RECORD OF ARCHITECTURE AND CONSTRUCTION.

WITH WHICH IS INCORPORATED THE "BRITISH ARCHITECT."

VOL. CXIX.—No. 4063. DECEMBER 17, 1920.

APPRECIATION BEFORE IMPROVEMENT.

THE suggestion that London needs improvement commends itself on first thoughts as being as easy of maintenance as of assertion. Such improvement might propose to add to the convenience and pleasantness of the City for business and residence in the spaciousness of its streets and central places, and to the dignity and beauty of its architecture collectively and specially.

In these respects most people who talk or write on London supply themselves, consciously or not, with a variety of ideals and standards of comparison drawn from parts of Continental or American cities that are sufficiently well known; foregoing the romantic interests of sites and historical associations supplied by Athens, Rome, Florence or Venice, texts are furnished for illustrating the need for improving London from the Champs Elysées and Place de la Concorde of Paris, the encircling ring of Vienna, or the wonderful sky-scrapers of New York and Chicago. But these proposals, though they wear a constructive air, seldom rise above the level of conversational or leading article necessities; being easy, they are superficial and are often impracticable in their oblivion of the foundation facts of the site and the daily life of the Metropolis.

The basis of suggestions for improvement lies first in a fair appreciation of what London is; that is, of the qualities or physical characteristics that London herself possesses, worthy of retention and appreciation, and specially of those which illustrate her history and modern life. Until these are properly appraised it is risky to propose alterations. Improvements are not infrequently fallacious, and many have been earnestly sought and painfully afforded that have provided, as any sympathetic guide to London will prove, sources of regret rather than of ultimate satisfaction. It is scarcely too much to say that there are antiquarian and artistic regrets associated with almost every London improvement of recent times. Even the foreshore mud of the Thames occasionally rises to reproach the one really great improvement of the past generation—the Victoria Embankment. Expensive street widenings or new thoroughfares, owing to altered centres of congestion or means of locomotion, may become almost derelict; for example, the great new road from Paddington to the City *via* the Angel. Even the urgent and irresistible motive to modern improvement furnished by street traffic is not a certain guide to a successful result.

The new and convenient habit of underground travelling in partial darkness by lift or escalator and tube scarcely qualifies the modern Londoner to imagine the possibilities of general architectural improvement; his outlook has become limited to a suburb and an office window; and, as Professor Pite recently remarked, he no longer enjoys the panorama from the omnibus top or from the hansom cab. The speed and weather protection of the straphanging inferno, mollified by artistic advertisements, have involved the loss of a constant and varying acquaintance with London buildings ancient and modern. This unconscious but real influence upon the imagination is sacrificed. How different are the mental by-products of a journey from Knightsbridge or Bayswater to the Bank by tube and by road, and how seldom do we now enjoy the peculiar interest of the raised perspectives of buildings and streets? And who will care to estimate the gain or loss, except of time, in proceeding from Waterloo under, instead of over, the river?

The safe basis upon which proposals for the improvement of London should be made is an appreciation of its characteristics and architectural history. Easy depreciation can propose deceptive improvements which will end in the discovery of loss rather than gain. It is not paradoxical first to weigh appreciatively the positive qualities of the depreciated subject upon which it is proposed to experiment by improvement. The architectural appreciation of London cannot be undertaken without a catholic charity that thinketh no evil, and that is willing to rejoice without prejudice in every quality of goodness in building. The progress of the history of the City is not to be broken off at any period by a doctrine of lost traditions and rejointed at the dictates of a personal whim. To-day we witness with regret the contempt in which the pathetic earnestness of the earliest Gothic revival building is held. Batty Langley's simple-hearted fervour for a fresh life in a pedantic architecture is treated with opprobrium by superior mediæval taste, forgetful that to him it owes the origin of any enthusiasm for Gothic art. Covetous eyes ignore the beauty of the plan of St. Dunstan-in-the-West, now the leading example in London of the work of John Shaw (the Bluecoat School Hall having been removed), and propose its destruction.

Assertions of individual taste must always be regarded as doubtful and guarded against; they are confessedly irrational and unscientific, and, perhaps for these reasons, have to be maintained with artificial energy. Buildings worthy of erection in a past generation of forefathers should be esteemed with affectionate sympathy by their descendants, whether near or remote, but little hesitation is felt when taste is invoked for condemning and destroying links in the chain of architectural progress. What shrift was afforded to pre-Reformation church fittings in the earlier days of the Oxford movement? The bonfires of Smithfield were re-lighted with Puritan woodwork, the leavings of which are now regretfully sought from dealers in antiques and redeemed at exorbitant prices.

Should the tendency to conservatism that the cultivation of appreciation will encourage be thought to endanger the accomplishment of any improvement on a large or general scale, it can be remembered that there are progressive forces at work that must be recognised as equalising this effect. There will be always the steady pressure of private interest in a commercial community promoting its special and private interests under the guise of public benefit, presenting the most constant if not the most cogent arguments for "improvement." There is a strong public spirit, nearly always healthy, incessantly working for the amelioration of inconvenience, and a less evident one that sees sanitation to be the secret of civic health. Besides, there are in all living organisms forces that throw off members that have ceased to function, and any community that is not content to become an antiquarian museum evicts its dead members.

These varying forces which make for "improvement" are usually blind to everything beyond their own limited objectives. They attain absurdity without shame, with expressions of pious intentions. Even churches are proposed to be pulled down to retrieve the poverty of the clergy and redeem the presumed miserliness of the laity.

It is necessary, therefore, to bring to bear every consideration suggested by a sincere appreciation of the values involved before improvement can be predicted for any proposal, and of these values the historic and artistic interests cannot be dismissed unless the basis of civilisation is to be displaced.

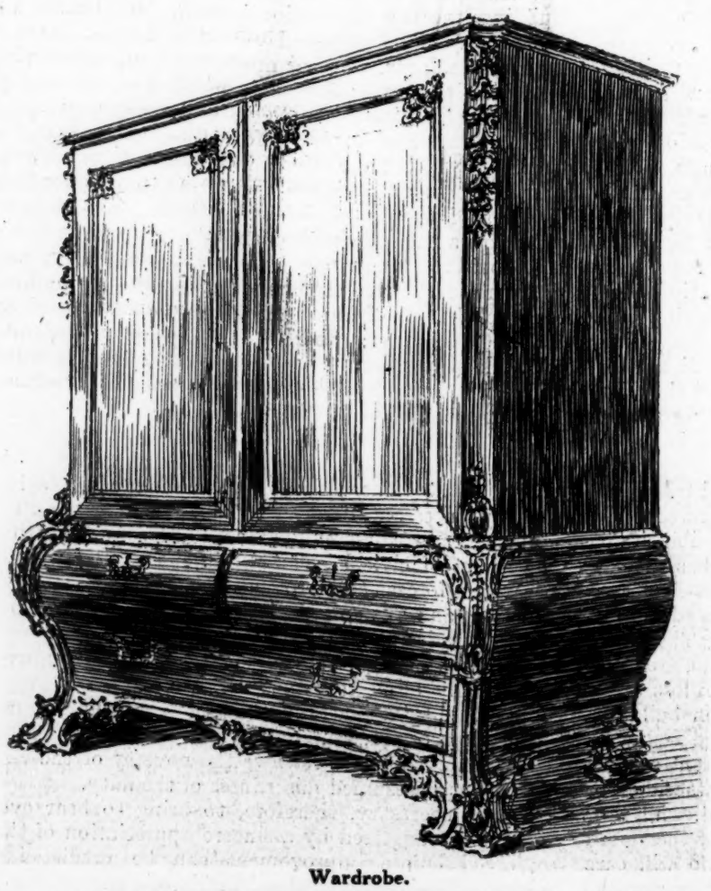
NOTES.

The Danger to Architecture.

THE dangerous extension of the functions of Government through its departments, to which the war has added so strong an impulse, is one to be resisted if the arts are to be secured from grave injury. But the tendency existed before the war, and we are now suffering from the neglect to withstand it in its earlier stages. The Romans had an adage that we should be quick to resist the first beginnings of evil, and that liberty was only to be retained as the result of eternal watchfulness. The present action of the Office of Works, threatening as it is to the independence and higher interests of architecture, is a further step in the development of bureaucracy. Instead of government for the people, and by the people, we are drifting rapidly toward government by the Government for the Government, and the increase of officials. Unfortunately the situation has apparently been much complicated by the participation of architects in this system, so that resistance which should be whole-hearted has been weakened on this account. If this dangerous extension of departmental authority, involving the control of architecture and building, is not stopped, architecture will soon sink to the level of its new environment, and the good architect who will not surrender his freedom to this official control will no longer be able to live.

The Misuse of the Art School.

THERE is some parallel between the competition by the Office of Works against the interests of architecture and the misuse of the art school, which is growing, and is a menace to craftsmen. For it divides them amongst themselves, and the effect of it is to rob them of employment. The State-aided art school, in entering into competition with the independent craftsman and producing for sale, has all the advantage of official machinery and public recognition; moreover, it will probably undersell him, as no proper estimate of economic cost can be reached in a State-provided establishment; one in which the charges falling upon the craftsman working independently will not be included. The development of the Royal College of Art from a teaching body into becoming producers themselves is a threat to the existence of the independent worker. When, some years ago, brushes made in the prisons of the country were placed on the market to compete against the manufacturer, an outcry was raised from the trade threatened and the proceeding was stopped. We have been less careful in the arts, and the evil is deepseated. The nationalisation of craftsmanship is the death of its liberty and its greatness. Only the realisation by craftsmen of this growing danger will create an opposition strong enough to bring such competition to an end, and steps should be taken to organise and combine to that end. The injury to art itself should be plain to all, because its effect on craftsmanship will be to drill it to the likeness of the organisation that purveys it, to the level of the more pliable and "safe" person that officialdom fosters. There is a story told of a customer at a bank, the manager of which asked to see him in reference to his account: "The fact is, Mr. ——," said the manager, "we bank with you instead of your banking with us!" The capture by Government departments of his rights is leading the citizen to realise that the interest of Government is now no longer for his welfare, but for itself.



Wardrobe.

From the Chippendale Exhibition at Burlington Fine Arts Club. (*See page* 684.)

(Lent by COL. MULLINER.)

"Luxury Building" and Personal Liberty.

THE rejection by the House of Lords of the Ministry of Health (Miscellaneous Provisions) Bill will not have surprised anyone who has followed the progress of the Bill or understood its provisions. Nor do we think its rejection will be regretted by architects and contractors, who can have little or no sympathy with the provision that the construction of any works or buildings may be prohibited if the workmen employed thereon are being paid wages in excess of the rate commonly recognised by employers and trade societies in the district. Interference with personal liberty during the war was necessary, but there is no apparent justification for it now, and we hope the Government will realise that proposals of this kind do not help them in their housing policy, and only serve to increase the irritation in a much-harassed industry. Builders who are constructing a subsidised house are, of course, affected by the decision of the House of Lords, and as they were assured that the Government would continue the subsidy for another year they have grounds for complaint, but this grievance could and should be remedied by a measure giving power to extend the time for granting subsidies.

Registration of Architects.

IN the course of the excellent paper on "The Work of the Measuring and Quantity Surveyor, and the Use and Abuse of Bills of Quantities," which Mr. F. H. A. Hardcastle, F.S.I., read on Monday before the Surveyors' Institution, and an abstract of which we give on p. 689, he referred to the need for registration to protect both architects and surveyors. "At present an auctioneer or, for that matter, an upholsterer or a draper, can employ, at weekly or monthly wages, architectural and quantity surveying assistants who get out drawings, specifications

Detail of Dome, Mosque of Qayt-Bay, Cairo. (*See page* 686.)

and bills of quantities. The former of these he signs as architect and the latter he signs as surveyor and pockets the fees of both professions. No man ought to be permitted to put himself forward as a practitioner in a profession of which he is ignorant, merely because of his ability to hire skilled persons and exploit their brains "—or for any other reason, if ignorant, we may add.

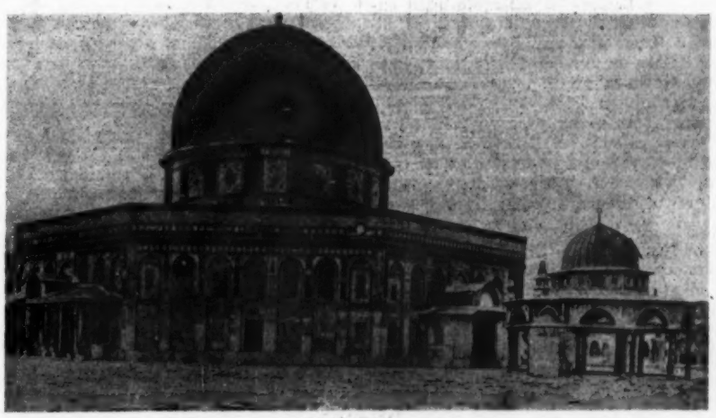
A Suggestion. THIS is one of the questions which the recently-appointed Unification Committee of the R.I.B.A. is considering and which will, no doubt, be settled one day by the passing of some form of registration for architects, probably in association with certain other professions. In fact, there is already so much agreement among architects and the allied professions, both in London and the provinces, that we wonder whether it has occurred to the Unification Committee to submit what may be called an interim Registration Report for immediate adoption if agreed to, leaving the larger question of unification for continued consideration by the Committee. We believe there is now a widespread desire on the part of architects for registration, and, bearing in mind the recently expressed views of responsible men in other professions, there should be little difficulty in obtaining general agreement on the subject.

Our Street Architecture and the Public WE have so often written of the need for a more sympathetic consideration of the value of architecture by the general public and the great help which might be given by the daily Press, that we greatly welcome the first systematic attempt to interest the public of a city in its buildings by the series of articles just commenced in the *Liverpool Daily Post* by Professor Reilly. It is of lasting importance to a city that its citizens should take a real interest in its architectural aspect and should come to realise how their daily life and success in business are affected by the quality of its streets and buildings. There are many people who do not quite realise why they like Bold-street better than Renshaw-street in Liverpool, who have not realised why the narrow street of Great Missenden is better for business than the beautiful main street of Amersham, and who do not understand the greatly superior architectural value of Regent-street to the dull depression of Victoria-street. It is within the power of every tradesman, whether he owns his premises or not, to contribute his quota to the improvement of our streets, and it has been much in evidence in recent years that the periodic refreshing of street frontages by good decorative colouring is much to be desired.

New Library, Cambridge. IMPORTANT collegiate additions at Cambridge are foreshadowed in the *Cambridge Review*. It is suggested by Mr. T. T. C. Huddlestone, M.A., that, with the sanction and co-operation of King's College, the Library extension, to house a million volumes, should be built on the east side of the front court of the College, with a length of 218 feet and width of 42 feet, and about 60 feet in height, built in the style of Wright's east façade of the Library (1758). The outlay is based on an estimate of six shillings per cubic foot. The cost for building and equipment would be about £200,000.

Adjustment of Labour Values THE public is always eager to find rules for everything —rules for conduct, for doing things, for making things, for designing or thinking things. It is pleased if it can feel sure that the designing of a cathedral can be traced to mathematical rules, or if the conduct of a life worthy of note has been governed throughout by well-defined rules of conduct. Therefore, "A Geometrical Solution of the Labour Problem," just published, should come before willing and attentive ears. Mr. Robert Brodie, M.Inst.C.E., states that he has worked out the geometrical solution of the Labour problem with a view to securing a uniform basis applicable to every employment and every district in the country. His diagram is designed to show the hourly, daily, weekly, and yearly rates of pay, starting with the assumption that a labourer who received 6d. per hour pre-war rate, shall have a permanent increase of 25 per cent. He very pertinently puts his finger on the glaring discrepancy between a labourer's and a mechanic's rate of pay. With so small a difference between them it cannot be expected that the necessary supply of tradesmen will be maintained, and with a shortage of tradesmen there will be a superabundance of labourers, producing a further cause of unemployment. We were told by a man this week that one of his brothers is a labourer and the other a bricklayer, and there is only a difference of 3d. an hour in their pay!

Sir Aston Webb, P.R.A. AT the prize distribution to students of the Royal Academy, on Friday last week, Mr. Frank Dicksee, R.A., announced that Sir Aston Webb, P.R.A., has been obliged to undergo an operation, which had, he was glad to say, been successfully performed, and "reports since had been as good as they possibly could be. It must be several weeks before we can hope for him to be in normal health. He is now in a nursing home." It will be the sincere wish of all who know him and who appreciate the great part he has taken as a leading representative of art, and especially of the art of architecture, that Sir Aston may soon be restored to normal health and the practice of his profession.



The "Dome of the Rock" and the "Dome of the Chain," Jerusalem. (*See page* 686).

GENERAL NEWS.

Professional Announcement.

Messrs. Bourchier, Tatchell & Galsworthy, FF.R.I.B.A., and Mr. Geoffrey C. Wilson, A.R.I.B.A., have transferred their offices from Queen Anne's Gate to Bank Chambers, 32, Strand, W.C. 2. Their telephone numbers are: Regent 3626 and 3627.

Mr. W. Curtis Green, F.R.I.B.A., has removed to 5, Pickering-place, St. James's-street, S.W.1. Telephone: Regent 2893; Telegraphic address: "Modillion, St. James, London."

Correction.

Mr. John B. Hector, M.S.A., Lic.R.I.B.A. (Vice-Chairman, Central Executive Committee, A.S.A.P.U.), asks us to state that his decease has been untimely reported and to assure his friends of his continued good health.

The Royal Sanitary Institute.

At an examination in Sanitary Science as applied to buildings and public works, held by the Royal Sanitary Institute in London on December 3 and 4, the following seven candidates were awarded certificates:—J. G. Bell, Clapham; J. F. Chattle, Clapham; A. G. Grimmond, Bournemouth; A. J. Hughes, Woodford-green; P. N. Khanna, London; F. H. Lennard, Richmond; F. H. Puzey, Chelsea.

The British School at Rome.

Mr. Asquith, who presided over the annual meeting of the subscribers to the Faculty of Archæology, History, and Letters of the British School at Rome, held in the rooms of the Society of Antiquarians on Tuesday last, in proposing the adoption of the report said the Faculty, like many other institutions, was now in need of funds. It was dependent on voluntary contributions. The area of study within the purview of the Faculty ranged from prehistoric times down to the literature of the present day. It was almost a scandal that there should be now only one studentship in connection with the Faculty. After the report had been adopted, Mrs. Arthur Strong, Assistant Director of the School, delivered a lecture on "Recent Archæological Discovery in Italy." Among the slides she showed were views of the new excavations and discoveries at Cyrene.

"The House of Griffin."

On the occasion of the completion of 100 years of the firm's existence, Messrs. Charles Griffin & Co., Ltd., the well-known publishers of technical and scientific books, have issued a "Centenary Volume" outlining in a very readable manner the history and growth of the business. There is a foreword by the Right Hon. Lord Moulton, K.C.G., and contributions by many distinguished authors. In a few hints to authors we find the following admirable advice, which we recommend to our contributors: "It cannot be too strongly emphasised that all possible corrections should be made in MS. and not deferred until the work is in proof. Printer's corrections are exceedingly expensive, and it is almost impossible to check their cost, as they may involve mechanical operations and manipulations extending over several pages, and out of all proportion to their size and importance. . . . It is manifestly unfair to the publisher to rewrite the work in proof. . . ." We would add that in the case of periodicals it is still more important that the proof should be as "clean" as possible; small corrections often mean the re-setting of many lines of type—a serious matter when printers are working against time to produce a publication.

Sheffield and District Society of Architects.

At a meeting of the Sheffield and District Society of Architects, held at Sheffield University last week, Mr. C. B. Flockton (President), in the course of his Presidential Address, said many men whose only qualification was a brass plate and unlimited self-assurance had been allowed to practise as architects. So much so that the confidence of the public had been frequently badly shaken. Registration was one way of meeting this difficulty. Possibly it would be beneficial in thirty or forty years' time, if they could combine with it a proper system of education and examination; but they would not get it in these democratic days. If the improvement was to come it must come from within. The Royal Institute of British Architects should stiffen its examination, and admit nobody to membership unless he clearly proved himself a man of ability. This would prevent the pernicious endeavours of certain people to sweep all and sundry into its doors. There never was a time when it was more vitally necessary for architects to combine than it was now. The interests of the profession were being undermined on all sides, and the art of architecture tended to become decadent: a careful study of war memorial designs would sufficiently confirm that statement.

EXHIBITION NOTES.

THE ACADEMY SCHOOLS.

Though it is one of the lean years of the Academy Schools, there were some interesting drawings and designs sent in for the architectural competitions, and the designs suggest some wise guidance from those who direct. Most, if not all, of the designs exhibited indicate at least a feeling for restraint and refinement, even if there is no apparent effort to overcome the toils of tradition.

The measured drawings for which Romilly Bernard Craze has been awarded the silver medal have for their subject the Dean's door at the south-west angle of St. Paul's Cathedral, and are well executed. The full-size details sent include a spirited pencil study of one of the carved coffer panels. An admirable set of drawings illustrated the well-balanced classic design for an open-air swimming bath, by Mr. Craze: and this takes the £15 prize and silver medal.

The Hostel for Disabled Officers, by Thos. Bilbo, shows a well-proportioned Wren design. Max R. Hofler has a well-balanced design for a memorial chapel.

Pylons to a bridge, to commemorate peace, by J. O. B. Hitch, are part of a design with some distinction, and are well illustrated; the little amorini with trumpets are disturbing and unworthy of the breadth shown in the rest of the design. An ingenious design for a Hostel for Disabled Officers, by G. F. Francis, has some good character shown in the excellent drawings; the rooms do not suggest being any too cheerful. Also very decided merit is seen in the nice tinted drawings of the War Memorial design, by D. R. Lyne: but we should have preferred it with the crowning bronze vase omitted.

SARACENIC ART.

There has seldom been shown so interesting a number of illustrations as the photographs and drawings of Saracenic work which were on the walls of the Institute gallery for the reading of the paper by Mr. M. S. Briggs, last Monday evening. The many interesting photographs were supplemented in a valuable way by excellent pen-and-ink detail drawings and sketches. Certainly Mr. Briggs has made this subject his own, and the reading of the paper seemed to be highly appreciated.

THE FINE ART SOCIETY.

The beauty of old Irish glass may again be realized by the public in the small gallery of the Fine Art Society, where its brilliance is most effectively exhibited in a large variety of decorative objects. The standard candelabra are well designed to display the possibilities of interior decoration which such a medium for light supports can supply. There are several quaint designs in this varied collection, including a large shallow-ribbed bowl for use as a gong. We suppose we must contemplate the definite limitation of further supplies of the Waterford glass which was such a valuable asset in the industrial productions of the eighteenth century. This Graydon Stannus collection is one of the most interesting we have ever seen, but it is apparently being rapidly dispersed.

COMPETITION NEWS.

Burgess Hill.

The design submitted by Messrs. George Baines & Son, 121, Victoria-street, S.W. 1, has been placed first in the competition for a branch store for the Haywards Heath Co-operative Society, with a frontage of 90 ft., to be erected at Burgess Hill.

The Society of Architects.

For list of prizes for competitions during the year 1921 organised by the Society of Architects, see our issue for December 3.

Llandudno.

The conditions of the Llandudno War Memorial Competition have now been approved by the R.I.B.A. and the Society of Architects, and there is no objection to members taking part. The sending-in day has been extended.

"Owen Jones" Prizes.

The Council of the Royal Society of Arts offers six prizes for book production and ornament, ornamental leatherwork, metalwork, wall-papers and textiles. Sending-in day, June 25, 1921. (See our issue for November 26.)

East Ham.

FOR THE EAST HAM HOSPITAL COMMITTEE.—Designs for a general hospital, to cost £40,000. Sending-in day, February 25, 1921. (See our issue for November 5.)

Calcutta.

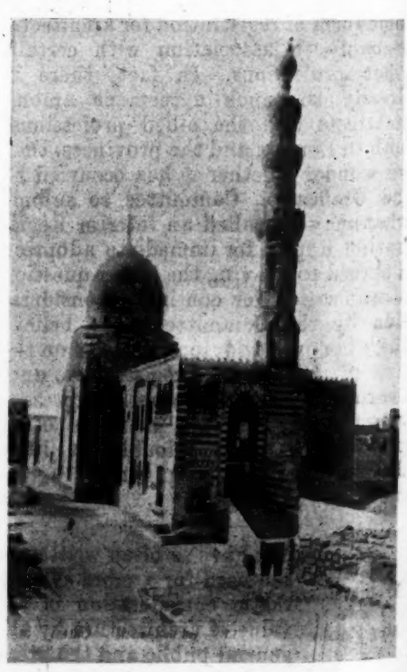
FOR THE LEGISLATIVE COUNCIL OF BENGAL.—Designs for a Council Chamber. (See advertisement this week.)

Royal Engineers' Memorial.

FOR THE R.E. WAR MEMORIAL SUB-COMMITTEE.—Design for a war memorial. Sending-in day, March 17, 1921. (See our issue for November 19.)

Other Competitions.

The following competitions are also still open:—Public House Competition (sending-in day, January 31); Lockerbie War Memorial, January 31.



Mosque of Qayt Bay, Cairo.
(*See page* 686.)

CORRESPONDENCE.

Sir A. Mond and His Octopus.

SIR,—The article in last week's issue of *The Builder*, entitled "Sir Alfred Mond and His Octopus," is of great interest to the building trade. As you state, the building trade was singled out for drastic legislation during the war, and builders, equally with architects, suffered severe losses, cheerfully borne, without requests for compensation. But it was never anticipated that that persecution would be continued in peace time, as it undoubtedly is. Many, if not all, the evils you allude to are our own fault, the result of being disunited. There is no cohesion among us. Architects do not seem willing to co-operate with federated builders, the federated builders are distrustful of one another, and there is still a large number of influential builders who are not even members of the Federation.

It appears necessary for an Act of Parliament to be passed to prevent one builder paying more for his labour than another, in spite of the fact that federated builders are pledged not to do so: this, surely, shows something is wrong somewhere, and it also means that either the outside influence is too strong or the Federation is not playing cricket, and has no power to enforce the rules of the game. We have against us a body of men more strongly organised than perhaps any other trade, and to combat them we need a Federation equally strong and equally united.

It is here that a little sympathy and help from the architects would be welcome. If they agreed not to invite any but federated builders to tender for their work, all the outsiders would rush to join our ranks. Having gained this advantage our hands would be strengthened to such an extent that if we passed a rule that no more than current rates of pay should be paid under penalty of dismissal no Act of Parliament would be necessary to enforce it. If we passed a resolution not to erect any houses for the Government except those designed by qualified and independent architects, it is pretty certain that the architectural profession would have no cause to complain.

Although trade unionists have intimated their intention of smashing the master builders, we have no desire to smash the trade unions, but by fair words or force to convince them that their "ca' canny" policy is wrong. We are not "agin" the Government, as such, but we do intend by reason or force to have fair treatment at their hands. There is no doubt that the master builders and architects have before them a fight for life—by unity and co-operation our victory is certain.

"A. E. S."

Manchester's Monstrosities.

SIR,—A sufficiently large number of houses in varying stages of construction, provided by the Corporation, may be seen now on the south side of Manchester to enable a comparison to be made with houses of the ordinary terrace type erected by builders not very far from the new ones during the years just preceding the declaration of war. There can be very little doubt, I think, that the more recently erected terrace houses of the smaller type, which form the majority and are tenanted by the same class as the future tenants of the new houses, are from every point of view more comfortable, warmer, more sheltered, more accessible than the houses now being erected. The latter will only attract tenants so long as there is no choice. For some not obvious reason the new houses are roofed alternately with red tiles and slates; surely all the houses fronting one street could have been roofed with tiles, and those fronting another with slates? Gables of, say, 30 deg. pitch and others of possibly 45 deg. are placed side by side, producing a painfully inartistic and clumsy effect. Who is responsible for this bizarre treatment? The low-gabled houses should have been grouped in one street and the others in an adjoining one.

The houses are mainly planned on the Tudor Walters' system with the maximum of outside walls instead of the minimum. In houses erected for tenants who will have only one fire and probably only one gas light in use, that is, the minimum amount of artificial heat during our chilly, damp winters, this preponderance of houses with a maximum of outside walls is preposterous, short-sighted folly. It indicates that no thought and study has been bestowed on the working out of a huge building scheme involving the expenditure of a vast amount of ratepayers' money, running probably into millions. The habits of probable tenants ought to be studied first of all—design, plan and construction must follow. That is where the experienced builder scores; he provides what is wanted and suitable, but our amateur city fathers are not doing so.

The builders' system of erecting houses in blocks of 8, 10 or 12, provides houses with the minimum of outside walls; they are, therefore, both warmer and dryer than the new ones will be. They are, moreover, less exposed to driving rain, sleet and snow, a point completely overlooked by cranks, who spread houses over wide areas, so that they cannot possibly fail to receive the full benefit of every storm from whichever point of the compass it may come. Dwelling-houses with the minimum amount of artificial heat, erected in blocks of 8, 10 or 12, will obviously be drier and warmer than the same number of houses erected in 4, 5 or 6 semi-detached blocks spread over a great area of ground.

No details of capital outlay, outgoings and rentals have as yet been published, but a rough approximation may be made which will probably be found to be underestimated when the real figures are obtainable. Assuming the houses to cost on the average £800 each and the capital to be borrowed subject to 6 per cent. interest, the weekly rent would be 18s. 6d. to cover that single item of expenditure. Two rental items must be added: An amount to cover interest on the capital outlay for street formation, paving, sewers, water, gas mains and similar items, as well as a further amount to cover repairs, insurance, rent collection and other outgoings incidental to small house property. These, at a hasty guess, may add, let us say, a third to the above-mentioned weekly rental, making it 24s. 8d. Rates must be added to that amount. In Manchester they are now 16s., and these vast building schemes will increase them. It follows that the rents plus the rates will be much nearer £2 per week than £1, and it equally follows that the tenants will not be able to pay them, certainly not during the remaining years of this century.

This brings us to two very important items—land and sinking fund. The amount paid by the Corporation for this site and for numerous others, the purchase of which has been announced in the local papers, is not yet known. It is clearly evident that the future tenants, who are not even able to pay the rental items given above, will not be able to pay anything for the land and will not be able to provide a sinking fund. This land, unable to earn a rental, is, *ipso facto*, reduced to prairie value, to the value level of land in an African desert or in Central Greenland; the only difference being that one is within a short stroll of the Manchester Royal Exchange, whilst the others are in areas never yet explored by man! The Manchester Corporation is now, therefore, industriously engaged in converting land within the city boundaries, now of rateable value as farm land, pasture, milk and hay production, into land of unrateable value; that is, they are reducing a large portion of Manchester to prairie value at the expense of the general body of ratepayers, who appear to have no conception of what they are being committed to.

Our friends the French have a saying that "appetite comes with the eating." Manchester contains 21,000 acres, of which possibly two-fifths are unbuilt on, providing the Corporation with vast and, one would have expected, unlimited opportunities for reducing land values from something to nothing. But it does not; an invasion of the adjoining county is being prepared; it is proposed to buy an estate covering thousands of acres far beyond the city boundaries in the best part of agricultural Cheshire, now producing splendid outputs of potatoes, swedes, milk, hay and other produce, and to reduce it to prairie value by the erection of 30,000 houses at a capital outlay of about £30,000,000. Details of this most appalling capital expenditure are being judiciously withheld; ratepayers might shy at them and button up their pockets. A garden city in Shropshire might follow next year—"appetite comes with the eating." Ambitions so vast are splendid, but from the rate-payers' and tax-payers' point of view they are not business. There must be a limit to the area of land to be reduced to prairie value.

To sum up bluntly, the houses to be erected are simply charity houses provided by the whole body of citizens for a small section. The tenants who will reside in them are as much objects of charity as the man who stands at the street corner with his hat in one hand and a monkey in the other.

T. SINGTON.

First President, Manchester, Salford and District Property Owners' Association.

Popular Lectures in Architecture.

SIR,—I notice in your comment on the proposal of the R.I.B.A. Literature Committee to prepare schemes for popular lectures on architecture, you express a hope that the importance of beginning with the public schools will not be overlooked. You will, I am sure, be interested to know that the A.A. recognised the importance of this matter some years ago, and has had in force since then a scheme for giving lectures on architectural and kindred subjects at the public schools. The lectures have met with very great success, and have, we believe, done much to stimulate an interest in architecture. A further scheme was prepared, to hold each winter a series of public popular architectural lectures, but unfortunately lack of accommodation compelled us to hold these in abeyance for a time.

F. R. YERBURY.

The Architectural Association.

[*** We are glad to know this has been done and that the lectures have met with success.—ED.]

A Corpus of Runic Inscriptions.

SIR,—Will you kindly grant us permission, through the hospitality of your columns, to make the following appeal for help in an archæological undertaking? We are preparing for publication, by the Cambridge University Press, an Annotated Corpus of Runic Inscriptions in Great Britain, on or in stone, bone, wood, metal or other such material, and we shall be most grateful if any of your readers interested in the subject will kindly bring under our notice any newly-discovered specimen and any example which we are not likely to know. Runically inscribed objects contained in the larger and better known public collections, or published in archæological works of national scope, we shall naturally have on our list, but as regards those in private hands or in local collections of the smaller type we shall be very glad of information, if correspondents will kindly send it to one of us at the address given below.

G. BALDWIN BROWN.
BRUCE DICKINS.

The University, Edinburgh.

Inquiries.

We have received inquiries for a method of sound-proofing a floor in an upper story to be used for dancing; for the makers of a cement hardener known as "Masscrete"; and for tile moulds and presses for the manufacture of magnesite tiles.

G

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A GENERAL meeting of the Royal Institute of British Architects was held at 9, Conduit-street, W. 1, on Monday last. The chair was occupied by Mr. Walter Cave (Vice-President), and amongst the visitors present was Amir Feisul, the ex-King of Syria.

Saracenic Architecture.

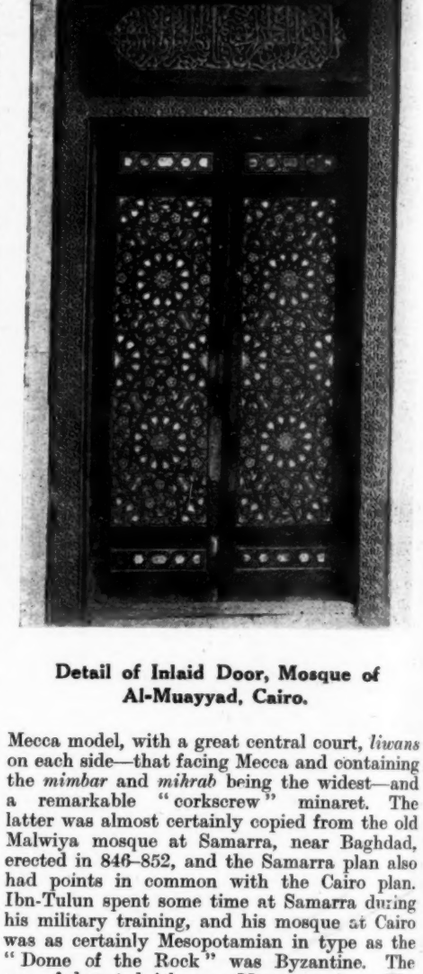
After the minutes of the previous meeting had been passed, Mr. Martin S. Briggs read a paper entitled "Saracenic Architecture in Egypt and Palestine," which, he said, was a product of the Muslim faith, in a semi-tropical climate, during the Middle Ages. It must, therefore, be judged only under those conditions. To the student of Gothic architecture in Europe it had some importance, for the origin of some of the forms that were most familiar in our ancient buildings—notably the pointed arch—was attributed to the Arabs.

The first mosque was built by Muhammad at Medina in A.D. 622, and was a primitive enclosure or yard with low walls. Adjoining were bare apartments for the Prophet and his wives, also a well. The roof was of palm-trunks and mud. Later a portion of the enclosure was covered with a similar roof, to form a shelter from the fierce rays of the sun, and finally that feature was extended round all four sides of the court. Then there was evolved a *kibla* or point in the wall towards which worshippers had to face when they prayed. That came to indicate the direction of Mecca, and the *kibla* wall was distinguished by a semi-circular niche—the *mihrab*—the origin of which was a bone of contention. It might have sprung out of anything from a Christian apse to a Buddhist image-niche, or even out of the brain of some pious Moslem craftsman. In the fullness of time Muhammad added a primitive sort of wooden pulpit, the *mimbar*, of which again the origin was uncertain. But in spite of that absolute lack of anything approaching architecture, as we understood it, in this elementary structure it already contained the essential features of the mosque plan: the square open court or *sahn* with a covered portico or *liwan* on each of the four sides, the *mihrab* or prayer-niche on the *kibla* wall, the *mimbar* or pulpit adjoining, and some provision for ceremonial ablution. But the most striking feature of the mediæval mosque—the minaret—was a later addition, and was instituted to allow the *muezzin's* call to prayers to be heard over a wide area, without recourse to the bells used by the Christians. At first it was a rough tower without any grace of form.

Within a few years, as the conquerors swept east and north, other mosques were built, notably at Mecca, at Cairo, at Kairawan in Tunis, and at Jerusalem.

The Kubbet as Sakhra ("Dome of the Rock") at Jerusalem, commonly called the "Mosque of Omar," was erected shortly after the Arab conquest of the city in 639. Among the chief buildings of the Saracens it displayed more than any other the strength of Byzantine influence, and for that reason it was not typical of the style. Whereas the normal mosque was planned as a place for congregational worship, the "Dome of the Rock" was primarily a shrine, under which lay the ancient rock that was believed to be Abraham's altar of sacrifice. The site was already revered by the Jews as the site of Herod's demolished temple, and was suited by nature to its purpose. Indeed, as seen to-day, the Haram esh-Sherif, or sacred enclosure, provided that mosque with a finer setting than any existing Arab monument, and was without any rival even in Cairo, where all the mosques lay either in crowded and narrow streets or on the desert. Externally the building was of octagonal form, with four porches. Within the outer wall was a wide aisle, then another octagon formed of piers and columns. From the columns sprang semi-circular arches or dosserets, and ties were used across the springing. Another circular range of columns carried the dome. Professor Lethaby regarded it as a Hellenesque building imbued with Byzantine influence, whereas Rivoira attributed the plan, like everything else in Arab art, to Rome. It was uncertain whether the interior structure remained unaltered, also whether the range of large external windows was a later work, but it was quite certain that the magnificent tile casing of the exterior dated from the sixteenth century.

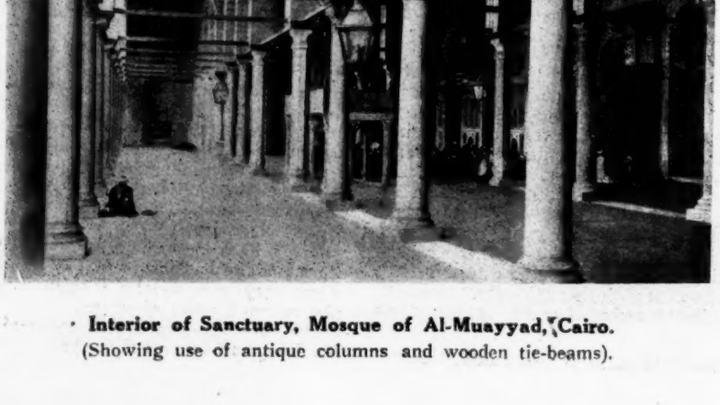
The great Ummayad mosque at Damascus was, like the last-named building, a highly controversial subject. It was erected early in the eighth century on a site previously occupied by a Christian church, earlier still by a pagan temple. But though archæologists had been chiefly concerned as to the relative positions of the temple, the church, and the mosque, an architect found it important for three main features: (i) the principal or Mecca *liwan* enclosed on all sides instead of being open as usual to the *sahn*; (ii) the round horse-shoe arches used there for the first time in the history of Saracen art; (iii) the *Madinat al-Arus*, the oldest surviving minaret in Syria, probably of the ninth century. The famous mosque of Ibn-Tulun in Cairo, built 876–879, might now be considered, for no important monument survived from the century and a half following the Great Mosque at Damascus. Cairo was then a large city, the seat of the governor of Egypt, Ibn-Tulun. His mosque was perhaps the most noteworthy building in the whole history of Arab art. In plan it followed closely on the Mecca model, with a great central court, *liwans* on each side—that facing Mecca and containing the *mimbar* and *mihrab* being the widest—and a remarkable "corkscrew" minaret. The latter was almost certainly copied from the old Malwiya mosque at Samarra, near Baghdad, erected in 846–852, and the Samarra plan also had points in common with the Cairo plan. Ibn-Tulun spent some time at Samarra during his military training, and his mosque at Cairo was as certainly Mesopotamian in type as the "Dome of the Rock" was Byzantine. The use of burnt brick was Mesopotamian. The battlements around the *sahn* were of Sassanian type, and there were cusped niches at Samarra just like those at Cairo. But most important of all was the use in this mosque, for the first time in a really constructional form in architectural history, of pointed arches, resting on massive brick piers with engaged shafts at the angles. That was an absolutely new method of building—long arcades of pointed arches, slightly horse-shoe in form, built of burnt clay bricks, covered with fine plaster, and decorated with ornamental roundels.



Detail of Inlaid Door, Mosque of Al-Muayyad, Cairo.

From the time of Ibn-Tulun there was another long hiatus in the list of noteworthy buildings surviving. Then under the dynasty of the Fatimids (969–1171) certain developments took place in mosque building. The mosque of Al-Azhar (970) in Cairo was the seat of the picturesque Egyptian "University" (so-called), but of the original building little more than part of the arcades remained, with Persian or "keel" arches, a form used more freely in Persia and Mesopotamia than in Egypt or Syria. Both this mosque and that of Al-Hakim (990) not far away were great "congregational" mosques, like that of Ibn-Tulun, planned to accommodate the whole population of Cairo for the Friday prayers.

In 1085 was built the curious little mosque of Al-Guyushy, on the wild hills above Cairo. It was constructed of stone with a simple domed minaret, very like contemporary examples in Sicily, and over the principal *liwan* was a larger dome carried on niche-pendentives. It was built by the commander-in-chief of the Egyptian army, an Armenian by birth. He also built a large part of the present walls of Cairo, including several of the gates, and in these



Interior of Sanctuary, Mosque of Al-Muayyad, Cairo.
(Showing use of antique columns and wooden tie-beams).

as in his mosque, was seen the introduction of elaborate masonry and vaulting, as well as of the Byzantine science of fortification. The small mosque of Al-Aqmar (1125) showed the first façade design, as well as the first known use of that extraordinary and most characteristic feature of the Arab style: "stalactite" ornament.

The period of Saladin and the Crusaders was marked by further progress in military architecture, masonry, and dome construction. The Citadel at Cairo, commenced by Saladin in 1176, was no doubt influenced by the fortresses of the Crusaders in Palestine, and that at Aleppo, a composite structure, maintained the same tradition. The mark of the Crusaders was equally to be seen in the streets and fountains and gates of Jerusalem that the Saracens erected centuries later, and a comparison of these buildings with typical Crusader churches left no room for doubt as to the importance of this intercourse.

But the golden age of Saracenic architecture in Egypt and Palestine was the period of the Mameluke sultans from 1250 to 1517. One of the first Mameluke sultans was Bibars (1260-1277), who built a large congregational mosque on the Abbassia road outside Cairo. With its long bare stone walls, battlements, and massive porches, it looked more like a fortress than a mosque. To architects it was important for the ornament of the porches, showing Crusader influence, and for the geometrical plate-tracery of its windows or *kamariyas*. In its plan it followed the traditional type, but the great façade was treated as a definite design, not merely as an enclosing wall.

Perhaps the most beautiful building in all Cairo was the tomb-mosque (1284-1285) of Sultan Qalaun. That was an entirely new type, and the chief feature in all tomb-mosques was the dome over the tomb itself. Hereafter the dome came to be the principal factor in Cairo architecture, and was often skilfully used in contrast with the slender form of the minaret. The interior of that building was decorated with rich ornament in marble and other precious materials, and the striped façade—probably the prototype of striped façades in Pisa and Genoa, whither sailors brought back ideas from Egypt—was a beautiful composition again showing Crusader influence. The windows were specially noteworthy.

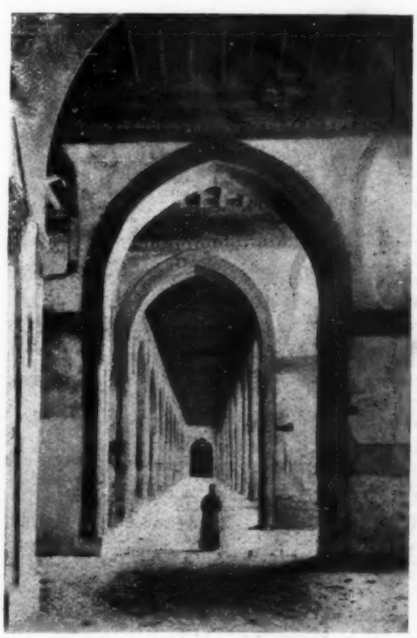
Another different form of mosque was the enormous Madrassa of Sultan Hasan (1356-1363) in Cairo. A *madrassa* was a collegiate mosque and had a cruciform plan, there being a deep recess or *liwan*, for the use of the four sects of Islam, on each side of the central open *sahn*. A huge pointed arch opened from the *sahn* into each of those recesses. That type was evolved at least 200 years earlier at Damascus, but the Mosque of Sultan Hasan was its finest example. Besides the *madrassa* proper there was a domed chamber containing the sultan's tomb. The austere interior of the great courtyard furnished the strongest possible argument against the view that Arab architecture was always fickle, unstable, and weak. The severe simplicity of the design was only relieved by the foliated parapet or battlement silhouetted against the sky, and by the magnificent stucco frieze in low relief round the Mecca *liwan*. Externally the building had a dome, and two minarets of different dates, but the chief features were the lofty façade, 113 ft. high and 500 ft. long, culminating in a great stalactite cornice—though bold cornices were seldom found, and possibly that might be an innovation from Europe—and the magnificent porch with stalactites over.

In the latter half of the Mameluke period was built the wonderful series of tombs in the desert east of the city, wrongly known as the "Tombs of the Caliphs." Of those the earliest, largest, and most remarkable, was the great convent and tomb-mosque of Barquq, erected by Sultan Farag in 1400-1410. It preserved in its main outlines the form of the congregational mosque, with the addition of a domed tomb-chamber at either end of the Mecca *liwan*. It was commonly said of Saracenic architecture that it was not symmetrical in its planning or grouping, but in many examples there was almost absolute symmetry. The principal elevation in this case was approximately symmetrical, though one of the minarets had lost its top stage. The south-east elevation, towards Mecca, was perfectly symmetrical. The chief features of the building were:—(i) the fluting of the domes, used to break up an otherwise plain surface that was always unpleasantly dazzling in the glare of the East; (ii) the arches of the *liwan*, recalling Crusaders' cloisters; and (iii) the graceful form of the minaret.

In the succeeding century, particularly under the Sultans Qayt-Bay and Al-Ghury, Saracenic art reached its culmination, and a number of splendid buildings were erected, chiefly in Cairo. They were notable for: (i) the profuseness and delicacy of their ornament; (ii) the slender beauty of their minarets; (iii) the studied grouping of minarets and domes; (iv) the harmonious relation of all details of both interior and exterior. The *madrassa* plan came to be the most popular, but the central court was roofed with a lantern or dome. The tomb-mosque of Qayt-Bay (1472-1474) was the most ambitious of the long list, and might be taken as typical of the others.

Speaking of Mameluke architecture in general, it might be said that mosque-planning showed a progressive development, and that the later mosques, though in most cases comparatively small, displayed an increasing richness of craftsmanship. Stone was always used, and the picturesque brickwork found in the towns of the Egyptian Delta was of later date. The masonry generally was of excellent quality, and of limestone obtained from the Mokattam Hills. Throughout that long period the architecture of Cairo was far more important and of greater excellence than that of all the other towns of Syria and Egypt put together. The favourite arch form was a pointed horse-shoe, but the horse-shoe was never exaggerated, the curves of the arch being prolonged very slightly below the springing. The round horse-shoe arch and the Persian arch were hardly ever found, the cusped arch very occasionally, whereas simple semi-circular and stilted semi-circular arches were common.

The outline of the characteristic Cairo dome, slightly stilted, was never, except in a few cases in the so-called Tombs of the Mamelukes due to Tartar influence of the bulbous type frequently regarded as typical of Saracenic architecture, but really peculiar to Persia and Turkestan. The outer surface was successively decorated with vertical fluting, with diagonal fluting or "chevrons," with geometrical arabesques, and finally with foliated arabesques of great delicacy. The early domes were supported on niche-pendentives, but stalactites were substituted in later examples, with an increasing complexity and lightness as the fifteenth century advanced. Apart from dome construction, vaulting was little used by the Saracens, except in gateways and fortresses. Nor did the Mameluke architects ever evolve any "orders." They were content to utilise marble columns as they found them, increasing their height by means of Byzantine pedestals and dosserets or of a curious stalactited block, not exactly a dosseret, above the capital. That supported the arch.



Arcades: Mosque of Ibn-Tulun, Cairo.

The façades of the mosques, and the walls of their inner courts, were crowned with indented or foliated battlements. Before the Mameluke period they had consisted of geometrical pierced parapets; the next stage was a curious saw-tooth type that seemed to have had its origin in Mesopotamia, and later appeared in Central and Northern Italy; and Mameluke buildings of the last phase had more or less elaborate foliated parapets, not unlike Gothic cresting. One hardly ever found a Saracen building crowned by a cornice. Similarly, the Arabs never utilised mouldings with any effect, but there was a charming type of strapwork or interlacing ornament that was frequently used round arches where Gothic masons would use a dripstone.

The Arabs seemed to have aimed at breaking up all flat surfaces which would otherwise have been glaring, and decorating them in very low relief. The chief feature that was peculiar to the Saracenic style was the curious geometrical form known as the "stalactite." Its origin was still quite uncertain, and it did not seem to have existed prior to the Mosque of Al-Aqmar at Cairo. It consisted of tiers of projecting niches, angular or curved or plain. It was used in the pendentives of domes, in the vaulted heads of porches, in capitals, brackets, and cornices, and in most cases involved very great skill in craftsmanship. Joggled voussoirs afforded another outlet for the skill of the mason and the marble worker. Saracenic woodwork was renowned for its elaboration, though the elaboration was usually dictated by practical reasons.

The Turkish conquest of Egypt and Palestine in 1517 put an end to the Mameluke sultans and caused an immediate change in architectural forms. Though the Saracen tradition in building had never really died, the Turkish conquest brought about a cessation of mosque building and a deterioration in design.

The lecture was illustrated with a large number of lantern slides, a few of which we reproduce in this issue by the courtesy of Mr. Briggs.

Discussion.

Professor T. W. Arnold, Professor of Arabic, London University, in proposing a vote of thanks, said during the past fifty years much had been discovered by architects and archæologists which had thrown a light on the beginnings of Saracenic architecture.

The vote of thanks was seconded by Sir Banister Fletcher, who said those who intended to take part in the competition for the great new hospital to be built at Cairo would have to consider how much of the native Saracenic art they would put into the building, which would be one of the most monumental in all Cairo. The influence of Saracenic architecture on Spanish Gothic was amazing, and was a point often overlooked. It said much for the influence of those Moorish craftsmen that their work was not only copied to such a remarkable extent, but also altered and adapted to suit a particular purpose.

Mr. E. P. Warren said the bulbous dome was almost invariably the form used in Mesopotamia, where they were usually covered with glazed tiles or small plates of copper.

The vote was passed with acclamation, and Mr. Briggs briefly replied to the points raised.

THE REPORT ON THE BEAUX-ARTS BUDGET FOR 1920.—I.

BY H. BARTLE COX, A.R.I.B.A.

ARTISTS and administrators alike are profoundly impressed by the publication of this very significant official document, M. Pierre Rameil's eloquent Report on the Beaux-Arts section of the "Budget Général de l'Exercice 1920." The title sounds unpoetic, but M. Rameil's report is of great consequence to the French, throws considerable light on the art movement of the country, and will doubtless be much quoted by historians, present and future, at home and abroad.

The dry facts of the case are that the Government calls for a credit of 38,023,800 frs. for fine art purposes (schools of art, theatres, museums, historic monuments, national palaces, etc.), and two supplements, one of 3,148,000 frs. for expenses chiefly occasioned by the war, and another of 1,000,000 frs. (to be added to the first credit of a million voted in 1919), completing the purchase price by the State for the house of Jacques Cœur at Bourges.

M. Pierre Rameil is Député des Pyrénées-Orientales, and the "Rapport"* is made in the name of the Financial Committee of the Ministère de l'Instruction Publique et des Beaux-Arts, the literary part of which clearly illustrates the Government's decided democratic attitude towards art: the Rome theory is attacked, the Ecole methods are criticised, decentralisation is aimed at. Special importance is attached to regional applied arts; great reforms are suggested, and an endeavour is made to stimulate national enthusiasm for a modern art for modern life. The Government feels, on economic and artistic grounds, a strong necessity to be "of the *époque*," in order to oust German and Austrian competition.

The parts of greatest moment for 1920 are the chapters dealing with the decorative arts, including painting, sculpture and architecture, to which these short articles will be chiefly confined.

ACADÉMIE DE FRANCE A ROME.†—The following is a literal translation of M. Rameil's remarks on the Académie de France à Rome:—

"The first question that presents itself to the Beaux-Arts reporters in the order of the budget headings is that of the Prix de Rome, which approves the studies of the Ecole des Beaux-Arts and sends its chosen ones to the Eternal City. We said at the Committee that, anxious to give to our young artists the possibility of blossoming forth in the medium the most favourable to their own affinities, we hoped they would no longer be exclusively directed towards the Medici Villa, and that they might be allowed to prefer to the Latin light the grey skies of London or the scenery of Holland. We understand that the Minister of Public Education and of Fine Arts is favourable to this idea. M. Paul Léon, the eminent Director of the Beaux-Arts, has, moreover, condensed it into a project which gives to the Rome prizemen the freedom of choosing henceforth as a place of residence Rome, London, Madrid (where the first stone of the Villa Velasquez has been laid), or Florence, the Institut possessing or being about to possess in these towns properties ready to receive the artists. To these art cities we shall ask for the inclusion of Algeria, that land of matchless beauty, whose oriental light is capable of charming young painters and of making them walk in the footsteps of a Fromentin and of a Dinet. At Algiers there already exists a villa which could be devoted to art, the Villa Abd-el-Tif, situated upon a picturesque height. The Algerian financial delegations, happy to seize this opportunity of making Algeria known and beloved, will certainly vote the necessary credits for the enlargement of the Villa Abd-el-Tif. Whilst awaiting the realisation of this primordial reform in the training of artists, the present regulation forbids pupils of the Medici Villa to leave Rome, even for a few days, without the authorisation of the Director. However, the sculptors and the architects are expected to travel in Greece; the musicians, after two years spent at Rome or in Italy, had to visit Germany or Austria-Hungary and to stay there at least a year. Their last year was to be spent either at the Academy or in the country which they chose after having informed the Director. What is possible for the composers of music should also be possible for all the Rome *pensionnaires*. If the antique monuments force respect and admiration as a basis for creative thought, they cannot limit it to their horizon." ‡

The above speaks for itself and further translations will show the same trend. Whatever may be the value of the classic ideal an aristocratic régime cannot predominate in a democratic age. The report has been favourably commented upon by the French Press, which agrees that art will not play its part in the economic evolution unless its rôle be extended to the practical domain. The document opens with a few pardonable rhetorical expressions, such as the "renouvellement de nos beaux-arts par la paix victorieuse," but, says M. Rameil, the "victorious peace" demands above all "production," without which, prosaically speaking, France will do a bad business. Elsewhere the report proceeds: "Architecture will always adorn itself, in our minds, with the prestige of having to erect some day, and not in its figurative sense, the perfect city, the logical city, in short, the "humane" city. An important task, a task urgent, summons it to-day—to give, over and above elementary life, a little beauty to our devastated cities. New materials, the necessity for "doing quickly," will perhaps give to our builders the secret of a certain comfort realised with the minimum of means; but if a sufficient share is accorded to the architect, to the artist, there may result therefrom a durable demonstration of the abode in accordance with its *époque* at the same time with each region. Art will be more intimately mingled with life, and the home more closely adapted to its inhabitants."

After lamenting the vulgarity of what is called in France (by the English expression) "modern style," which, he says, nearly killed "*le style moderne*," he adds: "To-day our style has accepted its firm principles, allowing it every research, and the ceaseless diversities of keeping the essential character of the place in which it is to be situated. It is profoundly 'of the *époque*' precisely because it does not attempt to create its own commencement nor its own end, but because it follows, with liberty, the great law of transformation."

This is no hot-headed expression of revolution, but a wise appeal for evolution; a kindly admonition to the progressives to respect tradition and a timely warning to the conservatives to be on their guard against stagnation.

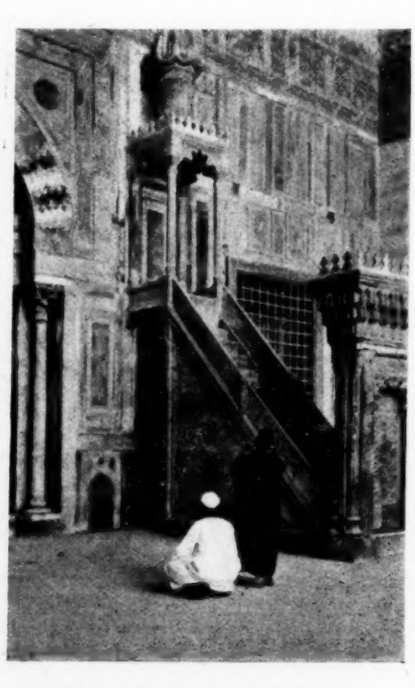
The Ministry of Fine Arts, founded under an autocracy, is now adjusted to Republican demands. The representatives responsible for the manner of administering State encouragement therefore take advice from the leading authorities of the various opinions, the voice of the *époque* thus acquiring more weight and sanction than if left to the isolated propaganda of the different schools or to one of former fame.

In our next brief account of the import of this official publication it is proposed to give a translation of M. Rameil's remarks concerning educational reforms at the Ecole Nationale Supérieure des Beaux-Arts, from which it will be seen that the State fosters art and progress, and shows a fervent desire, in spite of established prejudices, to encourage the people's energies in the different "*régions*" of the "democracy."

* An official publication of 195 pages.

† Credits granted under three headings for this item amount to 526,000 frs.

‡ Page 7: Annexe au procès-verbal de la 1re séance du 28 Avril, 1920.



Details of mihrab and mimbar, Mosque of Sultan Hasan (*See page* 686).

THE LONDON SOCIETY.

London Traffic Problems.

AT a meeting of the London Society on Friday last week, Mr. Wm. Yorath Lewis, A.M.I.M.E., A.M.I.E.E., read a paper dealing in a comprehensive manner with the London traffic problem. From observations he had made he had found that the present transit facilities by underground railways, buses and tramways were very slow methods of travelling from point to point. The train speed on the underground railways averaged 16 miles per hour between stations, but to get from a point three minutes' walk from a station to a point three minutes' walk from a station two miles distant, the speed for the total journey was reduced to about 5½ miles per hour. That was accounted for by the delays which occurred at every stage of the journey—the three minutes' walk at each end was extended to five minutes, owing to the congested nature of the streets and the delays at crossings; there were the delays of buying a ticket and waiting for the lift on arrival at the station, the wait for the train, and the wait for the lift at the end of the journey. As a remedy for that slow rate of travelling, he advocated the adoption of a continuous system of travel in place of the present intermittent system, the operation of which was the inherent cause of the difficulty of all existing methods of travel. The present system was also exceedingly costly, and when stations were situated half-a-mile apart the maximum capacity was limited to 40 trains per hour.

If, however, the continuous system were adopted, most of the difficulties caused by the high operating costs would vanish.

The "Adkins-Lewis" system had all the advantages of the moving platform, combined with compactness and high speed. In that system both tracks could be accommodated in a single tube of about 16 ft. diameter and yet give a capacity equal to the maximum capacity of the District Railway; it would also attain the same speed over a distance with twice as many stations per mile. The system would permit of the subways being much nearer the surface of the pavements than at present with resultant economies in cost and in the time spent in lifts. Further economics would be effected by dispensing with a large number of the men at present employed on uninteresting work, such as lift-men and guards, who could be employed on other work with advantage to the community and to themselves; for monotonous work was a prime cause of industrial unrest.

THE SURVEYORS' INSTITUTION.

QUANTITY SURVEYORS AND BILLS OF QUANTITIES.

THE following is an abstract of a paper read before the Surveyors' Institution on Monday last, by Mr. F. H. A. Hardcastle, F.S.I., entitled "The Work of the Measuring and Quantity Surveyor, and the Use and Abuse of Bills of Quantities":—

Bills of quantities, he said, were the result of the natural desire of men proposing to build to be informed beforehand of the probable cost of their enterprise. From the various methods of employing the quantity surveyor in the past, two considerations soon emerged. Architects came to the conclusion, in the first place, that as the client did in point of fact pay the surveyor, it was reasonable that he himself or his agent (the architect) should make the appointment, and secondly, that the detailed prices in the estimate would furnish a convenient schedule for valuing variations, and for many years now it had been the practice for the quantity surveyor to be appointed by the architect or the building owner, generally the former.

The somewhat casual manner in which the profession had grown up had led to uncertainty touching the nature and extent of the surveyor's liability. The recognised rule of law was that any man undertaking and receiving pay for professional work must bring reasonable skill and care to the discharge of his duties, failing which he was guilty of negligence and liable to be mulcted in damages for any loss thus caused to the person who had employed him.

QUANTITIES AS PART OF CONTRACTS.

A question a good deal discussed formerly—not so much of late—was whether, the surveyor being appointed by the employer or by his architect, the quantities should form part of the contract. The great preponderance of opinion was in favour of that course, and its equity was incontestable. What in practice usually happened? The builder had no voice whatever in the choice of the surveyor. Indeed, until he received the bills he commonly did not know who the surveyor was. He was supplied at the instance of the employer or the architect with a document which purported to be a detailed measurement of the work proposed to be done, the accuracy of which he had no adequate means of testing, and which at the same time was, and indeed must be, the basis of his calculations. In addition he was usually required to hand over a copy of the bills fully priced for the purpose of adjusting variations. To say, after all that, that the bills of quantities were no concern of the building owner was manifestly inequitable. Great pains had, however, been taken by building owners to avoid or evade all responsibility in this respect. The simple and rational course was to make the quantities part of the contract, and the surveyor, like the architect, an agent of the building owner, who was then liable to the contractor for the acts of the surveyor as he was for the acts of the architect, and both professional men were responsible to the building owner, their employer.

ARCHITECT AND QUANTITY SURVEYOR.

Ought the two professions of quantity surveyor and architect to be kept separate or united in the same person? It appeared that the mental qualities proper to the two callings were so distinct, even diverse, that an accomplished architect could as soon be expected to be a good quantity surveyor as a poet could be expected to be a senior wrangler. There was also a clear advantage in the bill of quantities being the expression of the independent and unbiassed opinion of a man who devoted his whole time to that work, and whose reputation was bound up with it. Both the professions, no doubt, needed the protection of registration. At present an auctioneer, or, for that matter, an upholsterer or a draper, could employ, at weekly or monthly wages, architectural and quantity surveying assistants who got out drawings, specifications, and bills of quantities. The former of these he signed as architect and the latter he signed as surveyor, and pocketed the fees of both professions. No man ought to be permitted to put himself forward as a practitioner in a profession of which he was ignorant, merely because of his ability to hire skilled persons and exploit their brains.

VARIATIONS.

The primary use of quantities was the obtaining, in a reasonable time, of competitive tenders on an identical basis. A secondary, though important one, was the furnishing of an extensive and convenient schedule for valuing variations. In most cases the surveyor who had prepared the quantities adjusted the variations. That work was generally done with fairness, but there was no doubt a possibility of abuse. It was suggested, as a rule, that if an item were altered only in one dimension or in description, the *difference* only should be measured; if altered in more than one dimension, the *item* should be measured. It was forgotten that a surveyor would frequently spend much time in measuring whitewashing, painting, or inexpensive fittings, and the like, his commission on which would not pay his assistants' wages; often, also, he would occupy many hours in arguing in opposition to claims which were ultimately withdrawn.

THE R.I.B.A. FORM OF CONTRACT.

It was with some surprise that he observed a fresh departure in the contract form issued by the Royal Institute of British Architects during the present year. Formerly Clause 13 provided that variations should be measured and valued by the architect or by a surveyor named in the agreement—usually the quantity surveyor for the job. The new clause provided that that work was to be done "by the architect or other person appointed by him," neither of whom, quite possibly, might be a qualified measurer. Surely that was retrogression.

THE USES OF QUANTITIES.

Another signal use of quantities was the regularising of work which was rendered possible by subjecting it to the analysis involved in bringing it into a measured bill. It was there reduced to ordinary terms of labour and material, and could be conveniently compared with other work. Quantities were also useful in the preparation of detail drawings. In most cases architects did not prepare all their details before the contract was signed. No set of drawings, and no specification ever yet did, or could, deal with every point, and much information was usually to be found in the dimensions of the surveyor, who, with his mind following every process of every trade, had necessarily dealt with the whole of the work in detail. Another useful function of quantities was in making valuations for payments on account. No other means could compare for a moment with the use of the priced estimate for this purpose.

The attempt to make the bill of quantities serve as a specification was an abuse. The specification told the contractor not only what he was to provide but where he was to put it. For the purpose of the estimate, for example, it did not matter whether (say) 1,500 superficial feet of a particular description of door were all in the upper stories of a building, or part there and part in the basement. In like manner there might be an item of a large number of superficial feet of moulded plaster cornice, made up of several different sections and distributed in various parts of the building.

STANDARD METHOD OF MEASUREMENT.

The proposal of a standard method of measurement had been the subject of sharp controversy, and a good deal might be said on both sides; but the preponderating weight of argument was in favour of it. Quantities were often issued which entirely failed to give the information they purported to convey, and reflected little credit on those who had produced them. When the architect prepared his own quantities, however, there was no one to impose a check. The movement, now very noticeable, to extend that practice amongst architects itself supplied an additional reason for a standard method.

The growing tendency in the direction of sub-contracting was here very much to the point. It was now not unusual to sub-let slating and tiling, steelwork, plastering, glazing, and, to a less extent, plumbing. The result was that each of those trades fought vigorously for its own hand, and brought a constant pressure to bear in the direction of fresh sub-divisions and fresh labours, all in the interest, or supposed interest, of the particular trade. Some time ago, in an action heard before an official referee, a master plasterer claimed that all plastering under 3 ft. wide should be described as "in narrow widths," and the claim was allowed. In some quarters it was now claimed that the diameter of a pipe was not the diameter of the bore but the mean diameter of the metal, with the curious result that as the strength of a given pipe increased its capacity was diminished. It was also urged that in the case of iron pipes all bends, elbows and other fittings should be enumerated, no matter how small the pipe. In the measurements of pavement lights the practice of the trade was to take the whole inch for anything over ½ in.; thus a piece 6 ft. 5½ in. by 1 ft. 5½ in. would be measured as 6 ft. 6 in. by 1 ft. 6 in. The manufacturer was thus enabled to add a distinct percentage to his account by manipulating the dimensions of his goods. In measuring lead-lights the custom of the trade was that no dimension should be taken as less than 1 ft.; thus a piece 9 in. by 4 ft. would be booked as 1 ft. by 4 ft. and one 6 in. by 6 in. as 1 ft. by 1 ft. It was highly desirable that that tendency should be arrested. The builder was usually neutral. He did not object if the surveyor would allow it, and there was no one to represent the architect or the employer, unless the surveyor took a hand. Some surveyors were too ready to fall in with ingenious suggestions for refinements in measuring thus put forward. They would do well to bear in mind that later on they would be quoted against other surveyors, and other surveyors against them. A good recognised standard method of measurement, to be followed not slavishly but with intelligence, would do much to "tune up" the slipshod and to restrain the too exuberant measurer.

The Joint Committee on Measurement, consisting of representatives of the Surveyors' Institution, the Quantity Surveyors' Association, and the National Federation of Building Trade Employers had practically completed its work on the following trades—excavator, concreter and drainlayer, waller and bricklayer, slater, tiler, plasterer and plumber, zincworker and coppersmith. As surveyors they had no reason to complain of the spirit in which the representatives of the Builders' Federation worked with them. The great increase in the cost both of materials and of labour, and especially the great proportionate increase in the cost of labour, made it impossible to resist the claim for a somewhat greater sub-division of items, and an extension of the principle of the separate measurement of labours. Urgent also was the claim of the trade for a reduction of the element of speculation. Some speculation there must always be, but it was in the general interest that it should be diminished. When there were a large number of "sporting" items in an estimate, what usually happened? The substantial and prudent contractor priced these items with a provision for adverse contingencies. The optimistic or reckless contractor trusted to his luck, or his power of bluff, and priced accordingly. In all probability he got the work. If all went well and smoothly, nothing more was heard of it. If not, the architect and the employer were approached with a number of appeals on account of "serious losses through totally unexpected causes," and the matter usually ended by an allowance being made and everyone left dissatisfied. If, on the other hand, there had been no optimistic tendering, and the

adverse contingencies had not arisen, they never heard of any deductions. The building owner thus stood to pay either way, and the prudent and straightforward contractor was placed at a disadvantage in competing for the work.

PROPOSED AMALGAMATION OF SURVEYORS' INSTITUTION AND QUANTITY SURVEYORS.

A step of great importance, both to quantity surveyors and to the Surveyors' Institution as a whole, had been taken during the present year, viz., the movement for the amalgamation of the Institution and the Quantity Surveyors' Association. The arrangement proposed was that full members of the Association should become Fellows of the Institution, provided they fulfilled the requirements of the Institution as to age, qualification, and responsibility. Other members of the Association to become Professional Associates provided they fulfilled the requirements as to age and practical knowledge of their profession. The amalgamation in the manner proposed was rather of the nature of the absorption of an allied society. After the fusion had taken place there would be no Quantity Surveyors' Association, and all future candidates would be required to submit to examination in the usual way.

THE NATIONAL BUILDING CODE.

A new form of contract, under the title of "The National Building Code," which had recently been put forward by the Builders' Federation, contained much that was of interest to the profession. The marked distrust towards architects which it displayed was to be regretted. In that it did less than justice. On the whole architects had discharged very difficult duties with a fairness and impartiality not always recognised. As usual they heard a good deal of the harsh exceptions, and exceedingly little of the vast mass of just, honourable and considerate professional practice. That was taken as a matter of course. Building contracts had always formed a subject of sharp discussion, and indeed it seemed beyond the wit of man to devise a form which should not, on the one hand, entrust the architect with powers which might conceivably be made the instrument of oppression, and which, on the other, should yet enable him to cope successfully with a builder who was unbusinesslike, litigious, or not straightforward. If the work was to go on at all with reasonable despatch, no matter what the contract, there must be good faith and a fair amount of goodwill on both sides. They were thus faced with the remarkable position that each representative body put forward for the use of its members a form of contract which the other repudiated. The irony of the situation was that if building work was to be done at all contracts must be produced which both parties agreed to sign. Had it, then, come to this, that the drafting was to be left in each case to the solicitors on both sides? Those who had had experience of the unassisted efforts of solicitors in that direction would view the prospect with dismay.

The duties assigned to the quantity surveyor by the code furnished a remarkable testimony to the esteem in which surveyors were held, and pre-supposed complete confidence in their ability and impartiality. Beyond question, moreover, even if part only of the proposals were adopted, there was indicated a considerable extension of the surveyor's duties and responsibilities, and it was impossible that that should not react upon his status. It could not be in the general interest that a man should be accepted merely upon his unsupported assertion as competent to undertake the important and multifarious duties which would in increasing measure devolve upon the quantity surveyor. More than ever was it necessary that he should be a member of the recognised society of his profession, be under its discipline, armed with its support, and in possession of its diploma guaranteeing him as qualified alike by knowledge, experience and character.

Discussion.

MR. A. G. CROSS (Honorary Secretary of the Quantity Surveyors' Association), in proposing a vote of thanks to Mr. Hardcastle, referring to the suggested amalgamation of the Quantity Surveyors' Association with the Surveyors' Institution, said a circular had been sent to the members of the Association by the President, recommending them to approve of the amalgamation.

MR. R. B. MANN, in seconding the vote, said that when a right appeal to what was somewhat loosely called "the working class" was found the present difficulties would pass.

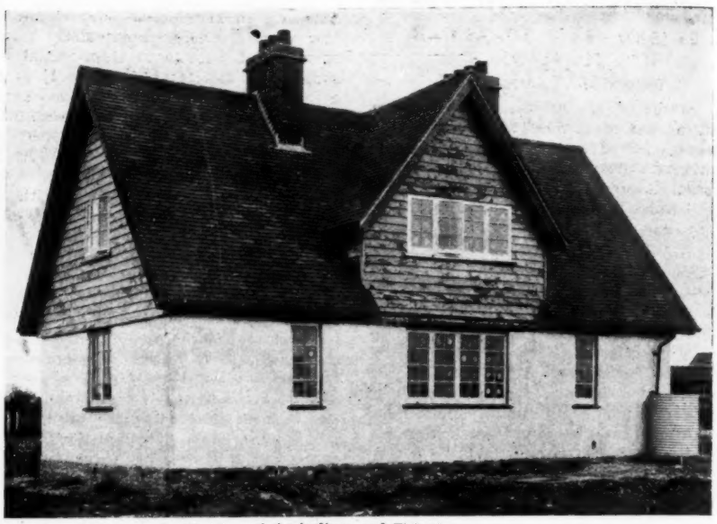
MR. SEARLES WOOD (Chairman of the Conditions of Contract Committee of the R.I.B.A.) said Clause 13 of the R.I.B.A. form of contract was not intended to cast any slur on the surveyor by the insertion of the words "other person." That alteration was made for the reason that architects under their contracts could not divest themselves of their liability to sign the extras and variations, and they believed that the architect, being a member of the Institute, would be more or less able to measure up his own extras and variations, or have an assistant in his office who was. They did not know exactly how to designate the person, so they said "other person"; but in 99 cases out of 100 that would be the quantity surveyor, and naturally so. With regard to Mr. Hardcastle's remarks as to contracts being drawn up by solicitors, the Institute had not quite taken that view. They put on the face of the document that it was simply a model, and they recommended that architects should advise their clients to submit this form to their solicitors. As it was not advisable for an architect to take out lists of quantities, so it was not advisable in the ordinary way for architects to pretend to be solicitors, and as this was to all intents and purposes a legal document, it was very much better for it to be a model form, and to have it put into shape by a gentleman of the legal profession. He had been very carefully through it with the solicitors of the Institute, and they expressed the opinion that it was absolutely essential that such a document as this should be drawn up by architects who knew what they wanted, and as a model for them to base their forms of contract on.

MR. WILLIAM WOODWARD recommended every young architect to acquaint himself with the elements of taking out quantities. There was, however, one item they could not put down, and that was labour. Regarding the 1920 contract form of the R.I.B.A., he advised every respectable builder to have nothing whatever to do with it, and he advised every respectable architect to have nothing whatever to do with the Building Code. The latter, in his view, was as unfair to the architect and the client as the Institute's conditions of contract were unfair to the builder and also the architect.

MR. GEORGE CORDEROY, referring to the National Building Code, said he favoured a suggestion that the Surveyors' Institution might act in a mediatory capacity.

Others who took part in the discussion were Mr. A. E. Baylis, Mr. W. Lacy, and Mr. H. J. Leaning, while Mr. A. L. Cox (Birmingham) sent a written contribution.

The vote of thanks to Mr. Hardcastle was heartily accorded.



From the Report of the Ministry of Agriculture and Fisheries.

Pisé-de-Terre Cottages at Amesbury Farm Settlement. (*See page* 697.)
(Elm Weatherboarding to Gables).

BERNINI'S WORK AT ST. PETER'S, ROME.

A LECTURE was given last Monday at the new rooms of St. Thomas' Historical Society, 59, Eccleston-square, by Mrs. Arthur Strong, LL.D., Lit.D., F.S.A., Assistant Director of the British School at Rome, on the "Baroque Art of the Counter-Reformation and Bernini's Work at St. Peter's, Rome." Bernini, Mrs. Strong said, had been the most admired and successful artist of the seventeenth century. His art dominated his period in Rome, where it had its fullest development, and also shaped the taste in France, Austria, and the Netherlands, and helped indirectly to mould the great British schools of architecture headed by Sir Christopher Wren. He was a sculptor, a painter, an incomparable architect, a stage decorator and town-planner of the first order, a witty playwright and caricaturist, a book illustrator of merit, and a fine musician. Temperamentally religious, he became the great interpreter in art of seventeenth-century mysticism.

Turning to St. Peter's, the lecturer said Bernini was architect in charge of the basilica from 1629, with very slight intervals, until his death. The colonnade, which took the place of the atrium of the first basilica, she described as an attempt to recapture for Christian art what had been one of the happiest inspirations of its prime. It was remarkable for the profuse employment of columns which, arranged in four parallel rows, provided three great alleys leading towards the church, and for the elliptical plan which was perhaps influenced by the Colosseum and other Roman amphitheatres.

In conclusion, Mrs. Strong said that barely a hundred years after Bernini's death his art began to be discredited by the neo-classicists, and soon became anathema to the leaders of the romantic and naturalistic movement and to the didactic school that had its exponent in Ruskin, but a sounder knowledge of history and a sounder perception of what was great and permanent in the laws of art and architecture were rapidly helping to dispel those prejudices. In alluding to the good work now being done by English art critics and architects towards rehabilitating the work of this artist, she mentioned amongst other writings the brilliant set of papers on the Baroque contributed by Mr. Selwyn Brinton to *The Builder* some years ago.

The lecture was illustrated by lantern slides including some of Bernini's most famous groups of statuary.

ARCHITECTURAL SOCIETIES.

LEEDS AND WEST YORKSHIRE ARCHITECTURAL SOCIETY.

Presidential Address.

IN the course of his address to the Leeds and West Yorkshire Architectural Society on December 10, Mr. J. C. Proctor, A.R.I.B.A. (President), said probably of all matters of local architectural interest the question of housing was the one which was at present most occupying their attention. They were all doing their best to evolve suitable types of houses—better houses, he hoped, than had been built in the past—and he believed that next year would show tangible results of all the preliminary spade-work. It might be that when the various types of houses now being evolved had been lived in, tested, and finally approved, the need for architects' services would be over, and the work of multiplication would be carried on by the builders. On the other hand, the continuous thought and effort of architects applied to the further improvement of that class of house might keep them in the position of still having something to sell which would be worth the added cost of their fees. On questions of lay-out there must always be vast scope for architects. He hoped, however, that they would not get immersed in that phase of architecture to the extent of forgetting that the art embraced much more. Whenever they had the chance they must still remember to build their very best, and not necessarily the very cheapest. It had often been said that high cost was sooner forgotten than bad building, and though the work in housing schemes was not necessarily bad, it obviously must be economic to the last degree, and depend more for its success on skilful planning than on ornament.

He thought it probable that the present high cost of building would improve the art of architecture. Gone were the days when at small cost meaningless ornament could disfigure the façades of the ignorant. The younger and less experienced architects would pause before exceeding the limits of the bare necessities of building, and the most skilful exponents of the craft would more than ever consider and reconsider each detail of unessential ornament. It was conceivable that for similar reasons they might approach once more to the simple and dignified methods that marked the later Georgian work. Future generations might thank these times for producing a style which under less rigorous economic conditions might have been missed.

With regard to architectural education, he had always thought that architecture as a possible profession was treated far too lightly. Perhaps because a boy showed little aptitude for business and might have a certain cleverness with his pencil, it was thought that he would do well as an architect, and ultimately that lad was in a position to disfigure the streets and destroy the amenities of the countryside. If, and when, registration was brought about, such recruits might be discouraged for their own ultimate good, and to the great benefit of the profession. He felt, too, that even after the satisfactory conclusion of a thorough training, it did not follow that the student would have attained to that degree of culture which seemed an almost essential part of an architect's equipment. Having embarked in practice, fully realising the trust which was theirs, they must push on, never doubting their ability to uphold the honour of their art. It was well for the student to remember that the very first drawing he made of work for actual execution was also his first definite contribution to history. He had commenced not only forming a permanent record of his own times, but also of himself. Each succeeding building should be an added monument to the architect's greatness, and not a nail in the coffin of his fame. He believed nearly all bad work was the result of attempting to go ahead of one's stock of knowledge. Once the design ceased to flow freely and naturally from the pencil, once they jumped up to refer to books and the work of others, then they might be sure that they were evolving work which would not satisfy them later. He did not for a moment mean they should disregard the work of others. Particularly was the past their friend, though so often thrust before the student in unpalatable form. If at any time a feeling that he was an original genius crept over the architect, he would recommend him to hide himself in an upper chamber, taking with him a volume of "The Orders of Architecture," and, should he say, Paley's "Gothic Mouldings." Contact with the art of the past could never weaken or impede the exercise of their own individuality. The notion that great originality did not demand the support of learning was almost invariably wrong. Cases had, perhaps, been known of brilliant genius emerging from surroundings of almost complete ignorance—and drawing glamour from that very fact—but such cases in the practice of the art of architecture must be rare. True originality must surely always be that which, while seizing with avidity the knowledge of the past, preserved its own identity.

Students should learn about the things that went into a house as well as the house itself. They should study their client and his possessions before attempting to design a receptacle for him and them. The architecture of the school must always be incomplete in that respect, for it could not introduce the student to the psychology of his future patrons. The prolonged study of the art and the ultimate acquisition of considerable executive power had a tendency to make them almost unconsciously attempt to dominate their clients with their architecture. It was often difficult, but a more tolerant and sympathetic understanding of the requirements of the people for whom they were working would do much to lift them in the client's estimation. He always felt that the student was apt to neglect the study of furniture and fittings, painting and sculpture, fabrics and hangings, all as much a part of architecture as the bricks and mortar in the walls. A man who could design a chair worthy to take its place in a mansion or a cottage would probably find he had not much difficulty in designing an appropriate building to contain it.

The President then presented prizes for competition drawings, as follows —

Measured Drawings.—A prize of three guineas each awarded to Messrs. R. G. Clarke and H. Watson, and a second prize of one guinea to Mr. C. K. Hanson.

Design.—A prize of two guineas was awarded to Mr. R. G. Clarke for a design for a country railway station; and a prize of one guinea each to Mr. H. Watson for a design for an archæological museum, and Mr. F. W. H. Allison for a design for a municipal building for a small town.

Sketching.—Mr. T. S. Barry was awarded a prize of five guineas for a water colour of "Bruges."

EDINBURGH ARCHITECTURAL ASSOCIATION.

PROFESSOR CHARLES GOURLAY, of the Royal Technical College, Glasgow, lectured to the Edinburgh Architectural Association, on December 9, in the Hall of the College of Art, Lauriston, on "The Orders and their Application by the Italian Masters." After referring to the study by the Italian masters of the classic monuments in Rome, and to their having written books with the object of advancing architecture by disseminating a knowledge of the orders, the lecturer exhibited slides showing a series of drawings of the Italian orders with their mouldings and enrichments. He pointed out that the orders should not be studied by architectural students apart from buildings, because their application to buildings was a fundamental point in the correct estimation of their value. This he emphasised by describing a chronologically-arranged set of views of buildings erected by the Italian masters in Italy. The application of the orders as a means of giving varied architectural expression was illustrated in the buildings shown.

THE ROYAL ACADEMY.

PRIZE DISTRIBUTION.

THE Annual Prize Distribution to the students at the Royal Academy Schools was held at the Royal Academy on Friday last. Owing to the galleries at the Academy being occupied by the Exhibition of Spanish Art, the students' work was this year exhibited at the Victoria and Albert Museum, South Kensington.

The chair was occupied by Mr. Frank Dicksee, R.A., who explained that he had been asked to fill that office by the President, Sir Aston Webb, who had been obliged to undergo an operation. That operation, he was glad to say, had been entirely successful, and although it would be several weeks before they could hope Sir Aston would be in normal health, the medical reports were as good as they could be.

He expressed the regret they all felt at the death of the late Keeper, Mr. Gow, whose interest in the work of the students must have endeared him to them all, and also took the opportunity to congratulate them on the appointment of that brilliant and distinguished artist, Mr. Chas. Sims, R.A., as the new Keeper. The Academy had entrusted him with fuller powers in the matter of teaching than had ever been accorded to a Keeper before, and he believed when the Schools got into full working order they would be able to congratulate him on the quality as well as quantity of the work.

The aftermath of the war had made itself felt in the Academy Schools as well as elsewhere, and was more perceptible in the male section than in the female. During the war the Schools had been carrying on as well as possible, but the male students had mostly been in the Services, and it was therefore only to be expected that they had not made such a good show as they would have done under normal conditions.

The Academy Schools had advantages possessed by no other schools, the outstanding feature being that the executive body consisted of the most distinguished exponents of the arts of painting, sculpture and architecture, most of whom were willing to give the students the benefit of their advice and experience.

The prizes were awarded as follows:—

Landscape Painting, Creswick Prize (£25) and Silver Medal: Agnes C. Tatham.

Design for the Decoration of a Portion of a Public Building, 1st Prize (£30) and Silver Medal: Daphne I. V. Benson; 2nd Prize (£10) and Bronze Medal: Anna K. Zinkeisen.

Design in Monochrome for a Figure Picture, Armitage Prizes, 1st (£30) and Silver Medal, not awarded; 2nd Prize (£10) and Bronze Medal: Dorothea F. Blake.

Composition in Colour, Prize (£10) and Silver Medal: Cecilia F. Forbes Robertson.

Cartoon of a Draped Figure, Prize (£25) and Silver Medal: Agnes C. Tatham.

Two Paintings of a Figure from the Life, 1st Prize (£10) and Silver Medal: Audrey M. Weber; 2nd Prize, Bronze Medal: Eleanor B. G. Shiffner.

Portrait Study of a Lady in Evening Dress showing Arms and Hands, Hacker Prize (£30) and Silver Medal: Marjorie Rodgers.

Painting of a Head from the Life, Hacker Prize (£20) and Silver Medal: Helen D. Kiddall.

Perspective Drawing in Outline, Prize (£5) and Silver Medal: Margaret M. Howard.

Set of Four Drawings of a Figure from the Life, 1st Prize (£15) and Silver Medal, not awarded; 2nd Prize (£10) and Bronze Medal: Cecilia F. Forbes Robertson.

Painting from Still Life, Prize (£5) and Silver Medal: Charles H. B. Jaques.

Set of Architectural Drawings, 1st Prize, Silver Medal: Romilly B. Craze; 2nd Prize, Bronze Medal, not awarded.

An Architectural Design (First Term Students only), 1st Prize (£15) and Silver Medal: Romilly B. Craze; 2nd Prize (£10) and Bronze Medal, not awarded.

Landseer Scholarships in Painting and Sculpture, of £40 a year each, tenable for two years, have been awarded—in Painting to Marjorie L. Bridgewater and Doris C. Zinkeisen; in Sculpture to P. L. Clark and W. H. Hartley.

Leading Contents.

	PAGE
APPRECIATION BEFORE IMPROVEMENT..	681
NOTES	682
EXHIBITION NOTES	684
CORRESPONDENCE	685
THE ROYAL INSTITUTE OF BRITISH ARCHITECTS	686
THE REPORT ON THE BEAUX-ARTS BUDGET FOR 1920.—I.....	688
THE SURVEYORS' INSTITUTION.....	688
ARCHITECTURE SOCIETIES	691
THE ROYAL ACADEMY.....	691
A NEW LABORATORY.....	694
MURAL PAINTING	695
THE SOCIETY OF ARCHITECTS.....	696
PISÉ-DE-TERRE CONSTRUCTION.....	697
HOUSING AND TOWN-PLANNING NOTES..	699
THE BUILDING TRADE.....	700
THE CONCRETE INSTITUTE.....	701

ILLUSTRATIONS.

The City Hall, Waterbury, Connecticut.

This building was erected in 1914–1916. It has a frontage of 202 ft. 4 in., and a transverse dimension of 148 ft. The material used is a Vermont white marble and Connecticut red brick. The brick is what is known as common brick, and while its general colour is red it varies in tone and is of ordinary rough texture. The structure provides accommodation for the offices of the Mayor and city officials, for the Common Council or Board of Aldermen, for a City Court, a Police Station and City Detention Prison, and for the Fire Department, with a central station for fire fighting apparatus. These various elements are grouped around an interior court, which is treated as a small formal garden. The cost of the whole structure was 681,981 dollars.

Mr. Cass Gilbert, of New York, is the architect.

Surbiton Housing Scheme.

The Surbiton housing scheme is chiefly noteworthy in two particulars, that houses are actually being built and many are already occupied, and that the architectural work is being carried out by a panel of ex-Service architects. Two large sites are being covered, one at Tolworth—in the south part of the urban district—the other at Surbiton Hill—on the north side of the railway east of the L.S.W.R. station.

The Tolworth site is level and was once occupied by a sewage farm, but this was subsequently farmed as a nursery garden, and is now a satisfactory site, though very low-lying. The lay-out plan includes one main road and a secondary road. An existing row of terrace houses occupies one corner of the site and thus prevents an entirely satisfactory treatment. The lay-out plan provides for 137 houses ultimately being placed on the site, this giving 12 houses per acre. In accordance with the wishes of the Council, practically all these houses are to be semi-detached. The first instalment consists of fifty houses as follows:—8 of type "B 4," 30 of type "B 3," and 12 of type "A." The first houses were opened by Lord Astor, of the Ministry of Health, on July 5. On November 11 14 houses were occupied, and the remainder are being completed at the rate of one per week. The contractors are Messrs. E. & F. Thorogood, of Surbiton. The houses are all built with 9 in. walls covered with rough-cast, and Messrs. Colthurst & Symons' double Roman pantiles are used for roofing. The architects who have designed and supervised the erection of the houses at Tolworth are Mr. Annesley H. Brownrigg, F.R.I.B.A., of 13, Park-place, St. James's, and Mr. Anthony Wilson, Lic.R.I.B.A., of 116, Victoria-street, S.W. The construction of roads and sewers is in the hands of Mr. H. T. Mather, C.E., Surveyor to the Surbiton U.D. Council. The lay-out plans and the general administration of the scheme have been carrried out by Mr. Martin S. Briggs, F.R.I.B.A., the superintending architect, of 88, Gower-street. W.C.

The site at Surbiton Hill lends itself to a more picturesque treatment. It consisted of two large meadows on the N.E. slope of Surbiton Hill, bounded on one side by the railway and on another by land acquired by the Council for the purposes of cemetery extension. The means of access was inevitably by a continuation of an existing road, Guildford-avenue. In the new lay-out this was bifurcated shortly after entering the site to form two roads of standard width produced to meet in a curve, thus forming a very unusual and attractive plan, the effect of which will be increased by the beautiful elm trees already on the site. Only a few of these will have to be felled. The area of the site is almost the same as at Tolworth, and provides for the ultimate erection of 132 houses on the basis of 12 per acre. The proportions of the three types ("A" "B 3," and "B 4") are the same as at Tolworth. The "A" and "B 3" houses have been designed by Mr. Horace Cubitt, A.R.I.B.A., of 7, New-square, Lincoln's Inn, and Mr. Joseph Hill, A.R.I.B.A., of Finsbury-pavement, E.C. As at Tolworth, they are treated with rough-cast and roofed with double Roman pantiles for the sake of economy, but a certain amount of brickwork has been introduced into the facings. The contractors at Surbiton Hill are Messrs. W. H. Gaze & Sons, Ltd., of Kingston-on-Thames. The roads and sewers have been constructed by Mr. H. T. Mather, Surveyor to the Surbiton Council.

The lay-out and general administration at Surbiton Hill, as well as the design of the "B 4" houses, has been carried out by the superintending architect, Mr. M. S. Briggs. We illustrate his lay-out plans and his working drawings for the "B 4" houses in this issue. The chief novelty in these plans is that a bathroom and w.c. are provided upstairs, as well as the four bedrooms. It is generally admitted that the class of tenant who can afford to pay a "B 4" rent, in a district of "black-coated" workers such as Surbiton, does not care for the downstairs bathroom provided in the "Manual" of the Ministry of Health, and it is only possible to obtain the desired arrangement by drastic compression of space, especially in the staircase, In a future number we may illustrate other types of the Surbiton houses now being built.

MEETINGS.

FRIDAY, *December* 17.

Architectural Craftsmen's Society.—Mr. A. Ling on "Photography as an Aid to the Study of Architecture." At the Royal Technical College, Glasgow.

MONDAY, *December* 20.

Architectural Association.—Mr. Robert Atkinson, F.R.I.B.A., on "The Architect as a Collector and Connoisseur." At 34–35, Bedford-square, W.C.1. 7 p.m. Also Exhibition of Drawings by the late Gerald Horsley.

TUESDAY, *December* 21.

Liverpool Architectural Society.—Exhibition of Recent Architectural Works, by Mr. Geo. T. Shaw, the City Librarian. At the Picton Room, Liverpool.

From the Report of the Ministry of Agriculture and Fisheries.

Pisé-de-Terre Cottages at Amesbury Farm Settlement. (*See p.* 697)

New Laboratory, near Colchester. MESSRS. SEARLE & SEARLE, Architects. (*See* p. 694).

A NEW LABORATORY.

THE illustrations in this issue show a recently-erected manufacturers' experimental and testing laboratory centrally situated in a large works near Colchester complete with all the equipment of a scientific institution, and carried out by Messrs. Searle & Searle, architects, in conjunction with their client's Chief Chemist.

The Central Hall on the ground floor, about 40 ft. square and of considerable height, is devoted to the Main Laboratory and has six double benches 13 ft. by 4 ft. 6 in., supplied with petrol-air-gas, water, compressed air, vacuum, and direct-current electricity at 110 volts. Two of the benches have a light horizontal shafting fitted for convenience in stirring, shaking, &c. The wall fittings comprise tiled fume cupboards, lead-covered distilling bench, stone combustion bench with a uralite hood connected to the draught, blow-pipe table, stills, and steam ovens. The fume extraction is carried on by a motor-driven fan in a roof fan-chamber, drawing through a graduated system of glazed fume pipes from the fume chambers, combustion bench, and lecture room table on the first floor. The usual arrangements for drainage from the bench sinks have been amplified by providing a system of open lead-lined channels situated in the interior of the benches and discharging into glazed earthenware traps. These are connected by special jointed glazed drains to the sewer, the whole system being readily accessible.

Departments conveniently linked to the Main Laboratory are the Balance Room with special anti-vibration balance table, Dark Room, Power Room, Gas Plant Room, Stock Room, and an office for the Chief Chemist. The power room is provided with a 10 h.p. motor and shafting for convenience in carrying out experiments on a larger scale than is possible in a laboratory. These rooms are fitted where required with water, gas, and electricity.

On the first floor is a large Elementary Laboratory with the usual benches, sinks, fume cupboards, and reagent shelves. Adjoining this is a Lecture Room with seating accommodation for 72 students. The Lecture Room and Elementary Laboratory are served by a Preparation Room and a connecting fume cupboard is placed in the wall between the Lecture Room and the Preparation Room. The Lecture Bench is fitted with gas, water, compressed air, draught and direct current electricity. Two of the walls have been prepared as lantern screens for convenience in showing slides. This part of the building was planned to enable boys employed at the works to receive continued education in technical subjects, for which there is no adequate provision in the district. It is anticipated that the Continuation Classes required under the 1918 Education Act will be carried on in the building when the sections dealing with this subject are put into operation. A separate staircase from the ground floor leads to the Library and a special room for optical work, where a particularly good north light is available. The extra height of the Main Laboratory has made it possible to introduce a mezzanine above the Office and Store Room, which provides considerable additional accommodation for stores.

Messrs. Brown & Son were the contractors for the laboratory equipment, whilst the petrol-air-gas plant was installed by Messrs. Mann, Egerton & Co., who took the photographs of the finished building and are the manufacturers of the gas plant. The whole of the footings, main and division walls, pipe trenches, partitions, cornices, copings, sills and pediments are of concrete blocks made in a "Winget" machine on the site, aided by one or two special wood moulding boxes.

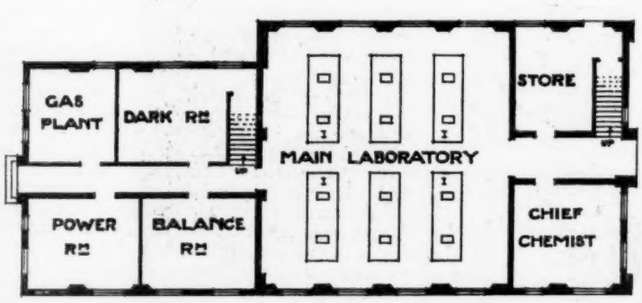
The floors and roofs are of reinforced concrete, with Westmorland slated gable roofs for obtaining additional ventilation and north light to some of the first-floor departments. The roofs and cornices are covered with asphalte. The concrete block walls are 9 in. thick with 18-in. splayed piers properly bonded. Complete erection plans were made for the position of each block, and the inside surface of the block walls is smooth and untouched by plaster, the joints being filled up flush and wiped off with a damp cloth and the whole of the walls and ceilings finished with "Duresco." Externally the blocks are moulded to a smooth irregular face as being best calculated to throw off the wet. The floors are laid with wood blocks, window openings have Crittall's steel sashes, and the whole building is heated by Slater's patent "Duplex" system of hot-water radiators connected by steam supply pipes passing through a copper tube in the radiator. Water supply is specially cared for in large lead-lined tanks with graduated supplies to all the various fitments, all piping being accessible. Gas services to give the requisite pressure on the benches are similarly graduated, also the compressed air and vacuum piping, as both floors carry a very extensive equipment

New Laboratory near Colchester.
MESSRS. SEARLE & SEARLE, Architects.
[Note bonded 18-inch piers. Floors put in afterwards.]

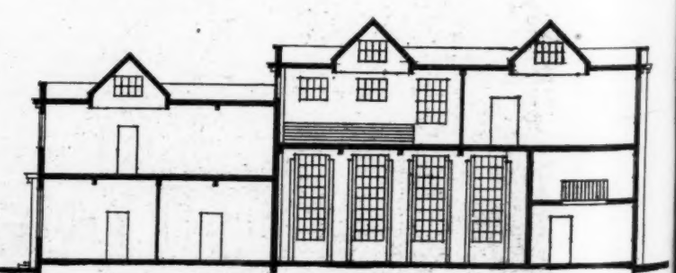
Messrs. Prestige & Co. were the building contractors, the steelwork and floors being carried out by the Aston Construction Co., Ltd.

Excavations in Palestine.

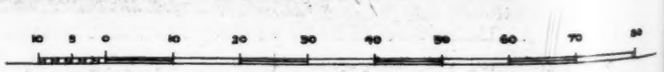
The excavations at Ascalon, undertaken by the recently-formed Department of Antiquities in Palestine, have, states the *Times*, yielded some satisfactory finds in the form of gigantic marble pillars and statues. In the Garden of Gethsemane, at the foot of the Mount of Olives, the Franciscans, in the course of digging the foundations for a new chapel, came across the remains of a mediæval church, and, later on, of a fourth-century church, of which it has been possible to make out the whole of the original design, while added interest has been afforded by the discovery of some of the original mosaic pavements. The remains will be properly conserved.



GROUND FLOOR PLAN



SECTION



SCALE OF FEET.

New Laboratory near Colchester.
MESSRS. SEARLE & SEARLE, Architects.

MURAL PAINTING.

MURAL painting has its own laws, and, like nature, they will not desert the heart that loves them. That which is so august in itself demands in the painter a discipline, even austerity, commensurate with it. In such way only will he reach the freedom to express himself, as by no means can he escape from the conditions of the work. And as mural painting offers the highest opportunity for the artist's powers so must he likewise offer the most exalted kind of service. It is the epic of painting, and he who would approach it must be furnished with some radiance of the divine fire. The conditions are hard, demanding the loss of ease and absence from comfortable studio conditions for the exacting terms of scaffold work and perhaps a draughty building, with little security from interruption and a tension growing out of the pressure lying in the demands of the work itself, and the necessity not to obstruct the building for a longer time than possible. Strange, in a sense, it is none the less true that these are amongst the most potent factors for the success of the work, in that they free the artist from himself. Nor is there any alternative; we cannot escape the claims that such work makes upon us any more than the soldier; and the painter, in approaching mural painting, places himself in the van of the arts, and through his example leads them.

On the other hand, to those deterred by these austere conditions there is the studio alternative. The work can be executed in strips, on canvas in the studio, to be afterwards joined together and stuck against the walls of the building it is to decorate. We do not reach the inspiration or requirements of mural painting in such a way. The studio alternative is the death of mural painting, replacing it by a kind of picture painting away from all the conditions that control the proper execution of both. For years this substitute has replaced the art of mural painting. Instead of the walls themselves furnishing the inspiration, they become an obstruction to be got rid of. Instead of growing out of the architecture—expressing and enriching it—it contradicts its forms. And it cannot be otherwise, mural painting being compelled from the first by its relations to the architecture, its conditions of lighting, and disposition, distance from the spectator, perspective, treatment, &c. Executed away from the building we have none of these conditions present to direct the work or to give it the required simplicity, force and breadth, so that its focus is inevitably miscalculated. For this loss there is no compensation other than the ease to take far too long over the work, because it is done in the wrong way. We shall, in the parts furthest from the spectator, find a great deal of wasted labour bearing no relation to the effect produced. It will not succeed, because it cannot be successful. The wings of its inspiration have drooped to the studio atmosphere, and the wall becomes subsequently the grave of the undertaking; and when in its place the impossibility of the method at once presents itself. It has dissolved the fabric of the walls contending against the architecture, which exists only to be an obstruction and mutilation to the painting.

We recently had an opportunity of seeing the paintings placed upon the walls of St. Barnabas' Church, Ealing, by Mr. James Clark, R.I. These are the work of a trained and competent artist whose work is always deserving of respect. It is evident at once on looking at these paintings that much study and time has been devoted to them, and that their execution expresses the standard of the trained craftsman. The subject represented is a Hierarchy of Angels praising and adoring the Trinity, painted on the walls of the chancel apse, which are divided by five windows. The composition has been carefully planned to fill the wall spaces between them and below. Treated realistically, the painting fades as it ascends, like distance in landscape, so that the illusion created is that of the easel picture, and the walls in this sense disappear. Of the windows, one on the north side of the apse has now the appearance of being suspended in space, and the openings of the ambulatory which pierce the wall below not only obstruct the progress of the angels but are emphasised out of all relation with the walling, though the design of the painting in itself is very ably put together. In what we have said there is no desire to compare unfavourably the painting of this artist with that of his contemporaries. We are concerned here with principles of work which are important to us at present and still more momentous as affecting the prospects of the future. If the architectural student is to gain through his closer intimacy with the allied arts of painting, sculpture, &c., he must not be led into thinking that there ever was, or ever can be, any alternative or short cut by which the laws of mural painting can be evaded, or that the modern substitute offers any compensation for the loss suffered through this broken tradition. He cannot endorse in justice to the claims of architecture a practice which withstands the sounder craftsmanship which we feel to be so urgent. We have lived through an age of compromise and half beliefs, but are coming out of it, and we must reconstruct our craftsmanship to meet this new era.

Memorial Tablet, Welsh Presbyterian Church.
By MR. F. R. GOULD WILLS, F.R.I.B.A.;
(This memorial was unveiled by Mr. Lloyd George on Tuesday last.

The Dispersal of Large Estates.

At a meeting of the Auctioneers' and Estate Agents' Institute, held in London last week, Mr. A. C. Driver read a paper on the subject of the breaking up of large estates which has been taking place since the conclusion of the war. There was little doubt, he said, that when the total amounts of sales during the present year were available, it would be seen that the year 1920 had exceeded the year 1919 in the disposal of agricultural property, inasmuch as landed estates had been placed on the market in great numbers and had sold readily throughout the season. The increase in sales since 1915 had been consistent, and it might well be that for some years to come the market would be maintained, as there would be a strong tendency for the large landowners to dispose of their interests and for the small owners to acquire land whenever possible. There might be more than one view as to the wisdom of breaking up the country into smaller ownerships, with its resultant effects on the welfare of agriculture, but there was, however, no doubt that land as a security was one of the first and foremost investments in the country and would remain so for all time. By its cultivation it provided for the production of all the necessaries of life, and afforded a livelihood for a proportion of the population as large as that carried on by any other industry. As an investment for capital it was a security with a steady rate of interest, and for the advancement of funds, by way of mortgage, it produced a security on which the capital advanced did not depreciate in value and which reproduced the original investment.

New Laboratory near Colchester. MESSRS. SEARLE & SEARLE, Architects. (*See p.* 694).

THE SOCIETY OF ARCHITECTS.

THE CITY COMPANIES AND THEIR HALLS.

A GENERAL Meeting of the Society of Architects was held at 28, Bedford-square, W.C., last evening (Thursday), when Mr. H. W. Wills, F.R.I.B.A., read a paper on "The City Companies and their Halls," in the course of which he said the origin and early history of the guilds which subsequently formed the City Companies was shrouded in obscurity. It was known that the earlier of them were the first voluntary associations recorded in the history of the English race, and that they had been one of the greatest factors around which municipal life and trade had grown. The present tendency was for the Companies to become agencies for general education and charitable work rather than specific organisations for the promotion of craft objects. But the Carpenters' Company, the greatest of those connected with building, carried out most useful craft educational work, and might in connection with the other building companies become an extremely useful element in the building world if suitably encouraged from without and within.

In early times the functions of the guilds were chiefly religious and charitable. As time went on and the craft element became more powerful very strict regulations were drawn up for the control of trades, and the prevention of "false work" and adulteration.

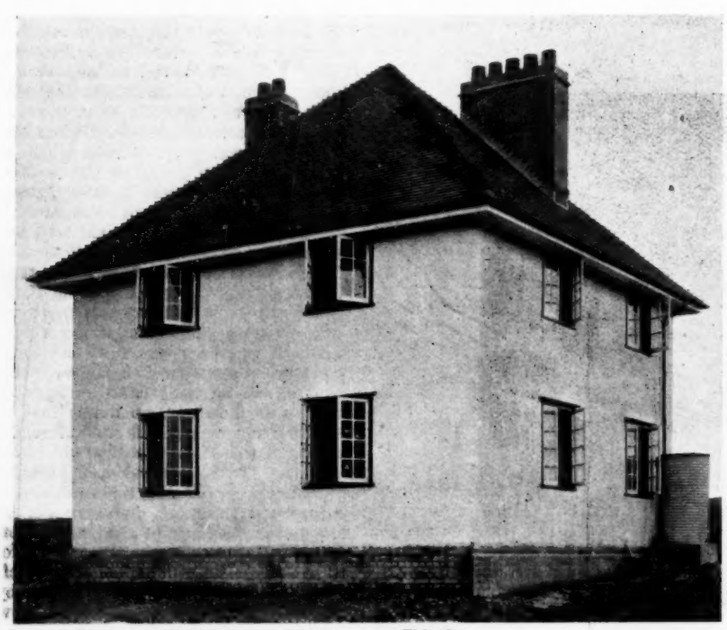
There were few trustworthy illustrations of the Halls as they existed before the Great Fire, and most of those which then escaped had since been rebuilt. The Barbers' Hall was rebuilt thirty years before the fire under the direction of Inigo Jones. Leathersellers' Hall, Carpenters' Hall, and Ironmongers' Hall, with others which escaped, had since been rebuilt. The probable appearance of some of the earlier buildings might have been much like the Hall of the Merchant Adventurers of York, which still remained, but in a large number of cases they were private houses which had been left to, or bought by, the Companies. In all there were thirty-five halls now existing in the City of London. The plans of many of the Halls followed mediæval lines, being blocks of buildings grouped around a courtyard approached from the adjacent street through an archway. The second Hall of the Leathersellers' Company, demolished at the close of the eighteenth century, had been fully shown on old engravings, and gave a good idea of the appearance of an earlier Hall. It formed a part of the Benedictine nunnery of St. Helen's acquired by the Company in 1543 after the dissolution of the religious houses, and was subsequently adapted and altered by the Company. Barbers' Hall now consisted of a very beautiful courtroom with a lantern over an old staircase and a few smaller rooms; the quaint hooded doorway which previously fronted the street now formed a part of the inner doorway fronting the courtyard. Although Merchant Taylors' Hall was destroyed, evidence had been obtained in recent years that it was rather a reconstruction of the former mediæval building than a new Hall. That was made evident by the discovery of a fifteenth-century recess with fan tracery on the north side of the Hall, which, with its slightly-altered kitchen and a small vault under part of the building, belonged to the Gothic era. Merchant Taylors' Hall contained some fine rooms of the Stuart era, but parts of the building had suffered through injudicious addition and restorations. Mercers' Hall was rebuilt after the fire from designs by Jarman, the City Surveyor of that date. The Hall and Chapel which replaced the Church of St. Thomas of Acon, in which the Mercers used to worship, remained, together with a colonnaded hall below. The courtroom was somewhat later in date, and the remainder of the buildings were modern.

Brewers' Hall was the most complete of the Halls of post-fire date, and was practically untouched. The rebuilding of Tallow Chandlers' Hall was carried out directly by master tradesmen. The very beautiful court dining-room showed that the Tallow Chandlers were well advised in their choice. The Pewterers rebuilt their Hall after difficulties which even in a bad time were exceptionally great. The very interesting ceiling over the Master's parlour was carried out directly by the plasterer, who submitted a model of it to the Court. Skinners' Hall was one of the most beautiful and interesting of its period, and contained many fine rooms besides the Hall, which was decorated with Brangwyn's mural paintings representing the conflict between the Skinners and the Merchant Taylors. The Haberdashers' Hall was attributed to Wren, but had been considerably altered and modernised. Its finest feature was the courtroom, with its elaborate plaster ceiling, on which were displayed the arms of the Company. The Vintners' Hall contained one of the finest rooms in any of the halls, which formed the Company's courtroom and was marked by great beauty of detail. Girdlers' Hall, sometimes attributed to Wren without sufficient evidence, was most interesting, the Hall containing a very fine screen, and the courtroom and staircase being good examples of the work of the period. Painter Stainers', Stationers', Apothecaries', Innholders', and Coachmakers' Halls, all belonged, approximately, to the same date; both the Stationers' and Apothecaries' Halls contained very fine rooms, and Apothecaries' Hall had a most picturesque courtyard. Innholders' Hall had been partially reconstructed, but with great skill, so that its characteristic features had been carefully preserved. Coachmakers' Hall was formerly the Hall of the Scriveners' Company, and was reconstructed in recent years, the old woodwork being preserved and re-used. Painter Stainers' Hall was an exceedingly picturesque and pleasing building. These halls were the work of a period when the influence of the master craftsman was still strong, and when the design of detail was left largely in his hands.

The following halls were the direct work of architects at a time when the influence of the craftsman had in a great measure died out. Ironmongers' Hall was rebuilt in 1747, possibly on old lines, as its plan showed very noticeable irregularities. The entrance hall was a most picturesque feature, and the livery hall over, which was redecorated a hundred years later, was a very interesting and by no means unsuccessful example of an attempt in an Elizabethan manner. The Hall was badly damaged during one of the German air raids and had since been demolished, the site having been sold for the erection of shipping offices. Salters' Hall was built in 1823 from designs by Henry Carr. It was characterised by refinement of detail and dignified and symmetric arrangement, and was a conception of a City Hall as a balanced architectural composition. Fishmongers' Hall was built in 1831, the architect being Henry Roberts. Goldsmiths' Hall was built from designs of Philip Hardwick, R.A., and was a very fine and dignified building. Armourers' and Braziers' Hall was built in 1839, from designs of Joseph Henry Good. It was a simple building of considerable dignity and pleasing proportions, which replaced an older brick building on the same site. The very pleasing little Hall of the Wax Chandlers, in Gresham-street, was built from the designs of Charles Fowler in 1852. Clothworkers' Hall was rebuilt about 1850 from designs by Robert Angell, the plan and arrangement being ample and dignified, while the Hall was well proportioned and effective in character.

The final group of halls to be noticed included those built in the 'seventies and subsequently, and among them was the Drapers', which, though the work of an unfortunate epoch, had an inner courtyard of very pleasing proportions and considerable dignity, and a spacious, well-proportioned livery hall. Carpenters' Hall was rebuilt at about the same time, and, although over-emphasised, was a building possessing qualities of dignity. The Cutlers' Hall was a pleasing little building designed in the Tudor manner, while the Grocers' Hall contained a good staircase and courtroom. Curriers' Hall was an interesting little building designed by Messrs. J. & J. Belcher in a Gothic manner, and the Cordwainers' Hall was rebuilt from designs by Chatfeild Clarke in 1909.

The City halls had, with the churches, the greatest features of interest in the City of London, which, they must hope, would be preserved for future generations. It was hardly possible in these times of stress that the poorer companies would succeed in maintaining all their expensive halls, but London would be the poorer in historic interest if any of the more architecturally interesting of the halls were sold. An alternative which was well worthy of the companies' consideration was whether by judicious alteration and additions they could not make fuller use of their buildings. Less than half of the companies now possessed halls of their own, and many of the smaller companies met at infrequent intervals. If use of some of the halls could be made by two or more companies, the result might be both saving in expense and additional security against the chance of destruction.



From the Report of the Ministry of Agriculture and Fisheries.

Pisé-de-Terre Cottages at the Amesbury Farm Settlement. (*See* p. 697.)

PISÉ-DE-TERRE CONSTRUCTION.

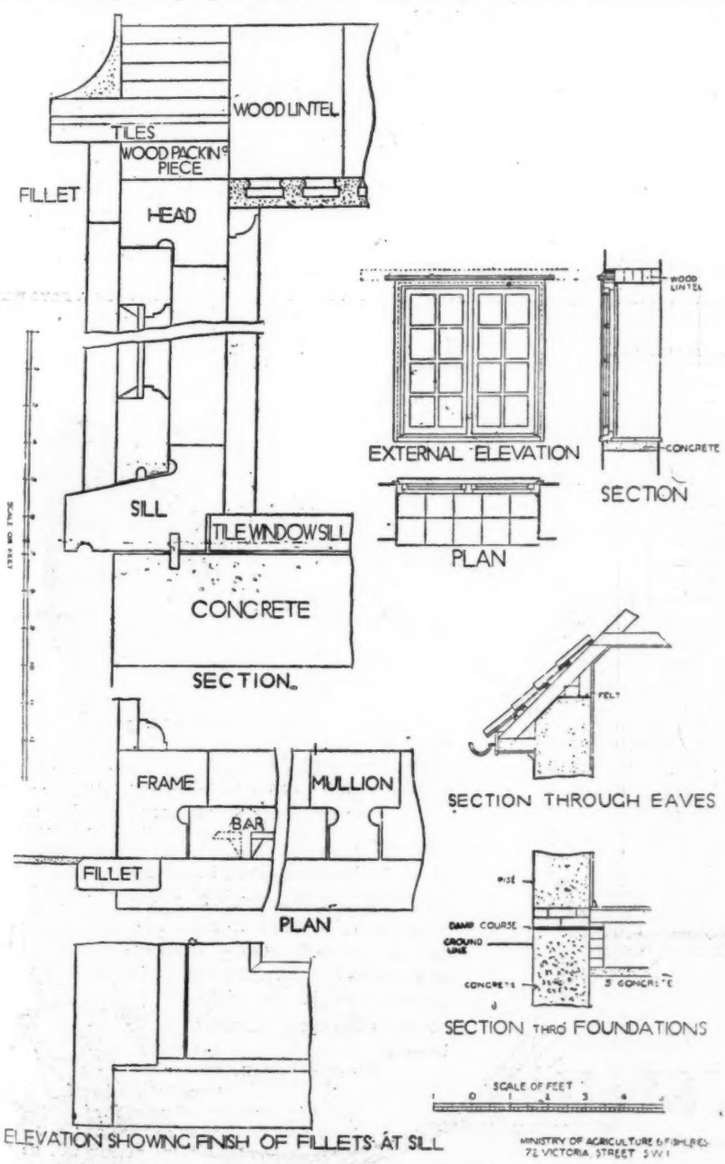
THE following report and the accompanying illustrations constitute the results of the research work carried out by the Ministry of Agriculture and Fisheries and the conclusions arrived at as a result of actual building experience at Amesbury Farm Settlement, Wiltshire. The *pisé* cottages at Amesbury, which we illustrate, have been erected under the supervision of Major Maxwell Ayrton, F.R.I.B.A.; Mr. T. Tyrwhitt, F.R.I.B.A, formerly Superintending Architects to the Ministry; and Major H. P. G. Maule, D.S.O., M.C., F.R.I.B.A., now Chief Architect to the Ministry:—

Pisé-de-terre walls are constructed by ramming dry natural soil between movable shutters forming a temporary mould. The Ministry of Agriculture and Fisheries took up the investigation in the early autumn of last year, and further researches were directed to discovering (*a*) the requisite constituents and characteristics of a soil which would ensure stable construction, (*b*) a suitable and easily handled form of shuttering, (*c*) the best form of rammer to consolidate soil, (*d*) the most satisfactory material for and method of rendering the exterior face of the wall, (*e*) the possibility or otherwise of building during the winter and (*f*) the relative cost compared with that of building in brick.

The conclusions derived from these investigations, set out below, should not be regarded as final or incapable of modification, for research can still be pursued in many directions; but the data already obtained is sufficiently definite for *pisé* construction to be embarked upon with satisfactory results.

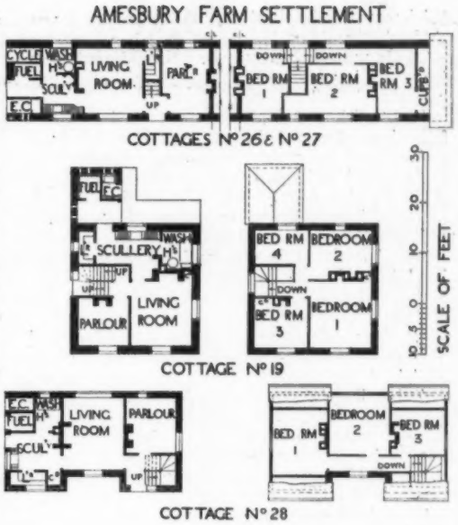
(*a*) SOIL.—It is a mistake to suppose that all earths are suitable for *pisé* construction; preliminary tests should always be undertaken to determine the suitability of a soil before use. Samples of soil should be tested to ascertain their mechanical strength. The essential qualities of a soil for *pisé* work may be defined as a firm coherence of the constituent particles when rammed and dried, combined with an absence of excessive shrinkage in the process of drying. A pure clay would satisfy the former condition, and pure sand or gravel the latter; yet neither by itself could possibly be used for *pisé* construction.

The earths ordinarily met with, however, are complex mixtures in which clay and sand are by no means the only constituents; and many of them possess the essential qualities, owing to the presence of other ingredients in combination. Calcium carbonate, occurring in chalk, marl or disintegrated limestone, helps to reduce shrinkage, while detracting little from the cementitious properties of the other ingredients present. Organic components are bad, being particularly liable to shrinking in drying, and they weaken coherence in the earth as a whole.



Details of Pisé Construction.

AMESBURY FARM SETTLEMENT



Top or vegetable soils are, therefore, generally unsuitable.

An all-important point is the water present in the earth at the time of actual use. This factor is so dependent on the composition and character of the soil to be used that a statement of a percentage can only be taken as a very rough guide. In general it will be found that the water present should be between 7 per cent. and 14 per cent. of the weight of the dried earth. In illustration of this factor of water content, it may be stated that a clay-gravel-sand mixture gave the best results with as much as 15 per cent. of water; while a chalk loam mixture with 13 per cent. of water shrank excessively on drying, but worked satisfactorily with 7 per cent. The tendency of inexperience is to work with too damp a soil. As long as the rammer will consolidate without pulverising the material, it may be assumed to be wet enough. Should it "pug" under the rammer, the earth is certainly too wet, and will shrink and crack when drying out. A good average sample of the earth should be taken for testing, sufficient to make a number of test blocks; and each block should be made up at a different stage of the earth's drying, so that the most satisfactory water content may be determined by the tests.

The percentage of moisture is most easily found by weighing the samples as made and again when they are quite dry; the difference in weight taken, as a percentage of the dry weight, giving the figure required. Exact measurements of the length of the sample should also be made, both at the time of consolidation and when dry. The percentage of shrinkage should in no case exceed 2½ per cent., and can generally be kept under 2 per cent. when the water content is low.

(*b*) SHUTTERING.—The shuttering required should be capable of resisting the considerable thrust of the ramming, ensuring a true face to the wall, be easily and speedily placed in position and moved as the work proceeds without support from the ground, and be economical in cost. The Ministry's technical officers have devised a set of shuttering (Fig. 1), which appears to meet the above requirements, has proved satisfactory in use, and is a pattern which has been adopted by many private owners who are beginning to build in *pisé-de-terre*. The filling in of innumerable putlog holes is, however, both costly and laborious. The Ministry is now experimenting with a tapered metal putlog which could easily be knocked out, and the hole then filled with cement and sand by means of a syringe. In the first *pisé* cottage built at Amesbury there were some 250 putlog holes, the probable cost of filling each being probably 1s. 6d. to 2s.

(*c*) BEST FORM OF RAMMER.—Iron, with a smooth surface, is a more satisfactory material for a rammer than wood. Two forms of rammer, each weighing about 7 lbs., are desirable—one flat, the other shaped like a heart, tapering in

thickness to the bottom, which should have a blunt edge (Fig. 1).

(*d*) EXTERNAL RENDERING.—Various materials for rendering have been tried on pieces of experimental wall at Amesbury.

In addition to bituminous coatings, the following external finishings have been tried :—

A.—Sand and ground lime 1 and 1 brushed on.

B.—Sand and chalk lime 1 and 1 brushed on.

C.—Sand and cement 1 and 1 brushed on.

The colour and appearance of A appeared quite satisfactory and will be adopted for external work. C is quite satisfactory and very hard, but the colour is Portland cement colour, and would probably need a wash to give a satisfactory appearance.

(*e*) BUILDING IN THE WINTER.—The first *pisé* cottage erected at Amesbury is proof that, given sufficient protection from severe weather, building in *pisé* can be carried on during the winter months. The expense of providing screens and tarpaulins, and the labour charges involved in moving them on and off the work as demanded by weather conditions, goes to prove, however, that it is not sound economy to undertake *pisé* construction during the winter season.

(*f*) COST IN COMPARISON WITH BRICKWORK.—The cost of the first *pisé* single two-story cottage at Amesbury, complete with all finishings and fittings, does not show an appreciable saving over a similar cottage in brickwork. It must be remembered, however, that this cottage was the basis of all the experimental work; that the brick foundations were carried to an unnecessary height, as is now recognised; that there were difficulties and delays in arriving at a satisfactory form of shuttering; that further delay and expense were incurred by building in the winter; and that the workmen employed had to gain their practical experience on the work.

Work on the other two-story cottages proceeded smoothly after the preliminary difficulties had been surmounted, and the careful costings kept in regard to all the building work show that *pisé* walls, using ordinary building labour, can be constructed at a cost of 15s. per yard super as against 25s. per yard super for 11 in. hollow brick walls. These figures are calculated on *pisé* walls 18 in. thick on lower floors, and 14 in. above (average 16 in.), with labour at 1s. 3d. per hour, producing 1 ft. cube of finished wall per hour, as against brickwork costing £56 13s. 4d. per rod. The cost of scaffolding is not taken into account in these figures, but would be less with *pisé* than brick.

The nature of the foundations is a considerable factor in the ultimate cost of *pisé* building. It is considered that the *pisé* work may be begun at 9 in. to 1 ft. above ground level; below this level brick, stone or concrete must be employed. A good damp-proof course is essential.

Notes on Construction.

It is essential that the design should be suited to the construction—square or oblong plans without breaks being most suitable. Gables and high walls should be avoided, and bedrooms formed as much as possible in the roof.

In forming lintels, 4 in. by 2 in. timbers have been placed side by side through the thickness of the wall, except where the door or window head is to come. In the position to be occupied by this head a temporary support of the same length as the lintel, but rather less in depth, is put and strutted up from the sill.

A simple method of constructing sills is either concrete 3 in. thick through the thickness of the wall, or brick with the oak sill projecting (Fig. 2). For heads, tiles bedded direct on the wood head would appear to be the best method. An alternative would be to show the wood lintel externally with tiles above. The *pisé* work is continued above the lintel and support, and subsequently the strutting to the support is removed and the support taken out, leaving

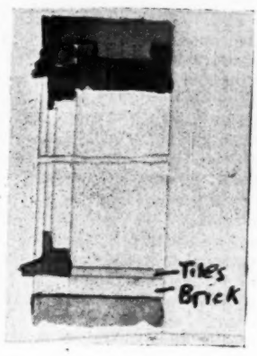


FIG. 2.

a cavity, which allows the frame to be put in and dropped down so that the groove of the oak sill of a window may engage with the water bar embedded in the concrete sill, or the foot of a door frame with dowels in the step. The cavity over the head is then filled in with pieces of tile in cement, and two courses of projecting tiles are put to give a drop. Lintels have been given a bearing of 1 ft. upon the jambs. Over a wide opening it is best to strut the lintel as well as the support, for its vibration under the ramming may damage the jambs, and it is impossible to make solid work upon such a bottom. The attempt to build frames in as the work proceeds has not been successful, for the pressure brought against a frame by the ramming is apt to bend it slightly or displace it. The jambs of openings are formed by stops made of boards put inside the shuttering and stiffened by struts between a pair of stops or from the nearest pair of cross stretchers.

Eaves should be given a good projection, and if roofs are of tile or slate, should have plain elm board soffit and fascia left from the saw without any elaborate bracketing, and no painting whatever. (Fig. 3).

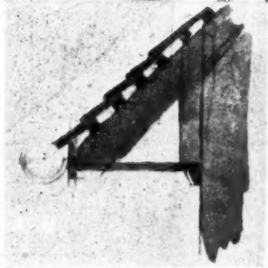


FIG. 3.

Internally walls have been 2-coat plastered with seemingly very satisfactory results, but where the *pisé* has been left with a good and fairly unbroken surface it is considered sufficient to finish with a brush coat of chalk or ground lime and sand in all cases where exceptional wear is not expected (Fig. 4). In the second single cottage built at Amesbury it was decided to treat the walls of the kitchen and living-room, after making good any inequalities, with lime and sand only, and in the scullery and on the stairs with cement and sand. This is obviously an important consideration, and makes it desirable that every care should be taken in ramming to get the best possible surfaces both internally and externally.

The results of these internal surface treatments are being watched closely, for it is obvious that if a sufficiently good surface can be obtained by these methods, a large saving will be effected. If satisfactory it would probably be economical

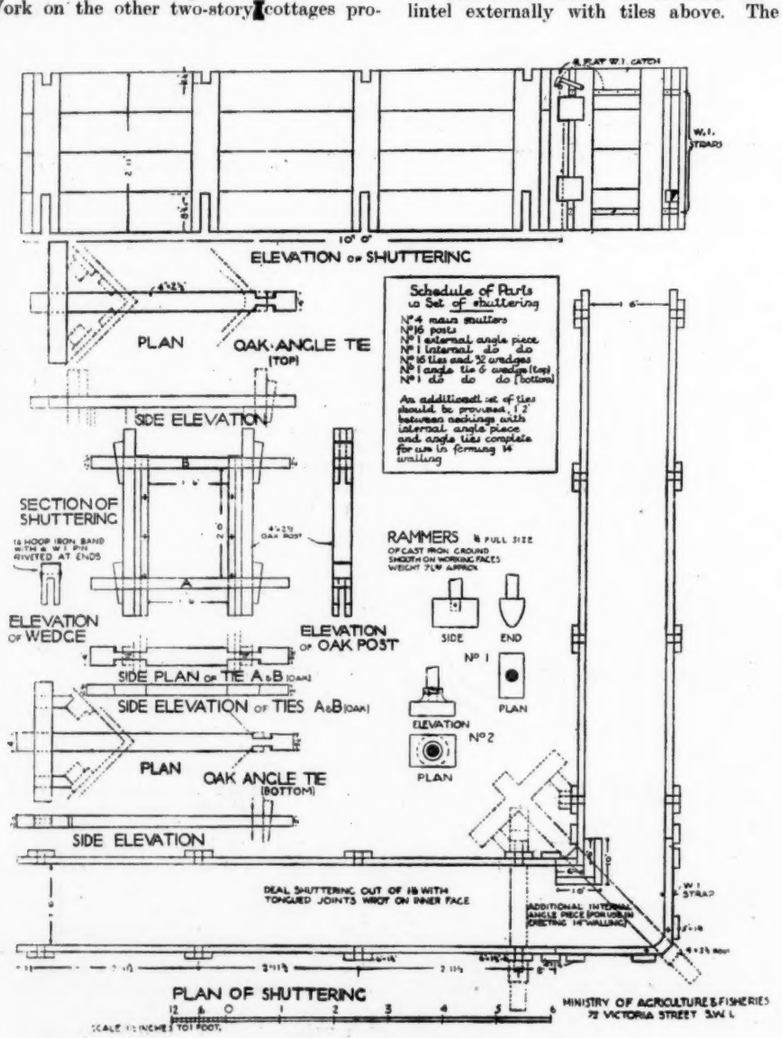


FIG. 1. Detail of Shuttering for Pisé Walling.

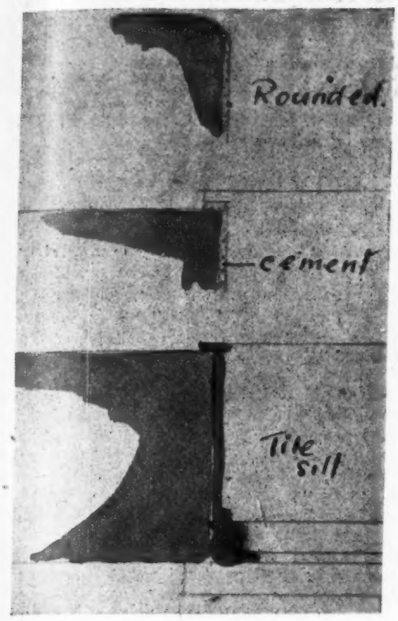


FIG. 4.

to build interior walls in *pisé*, even if such walls had to be 9 in. or 1 ft. thick, as plastering proper would then be eliminated from the whole of the ground floors save on such portions as were built in brick. Window jambs would probably have to be rendered in cement and sand, and a wood angle fillet or flat architrave might be desirable.

Brick fireplaces, flues and chimneys appear necessary at present, but the Ministry is not satisfied that these are essential. With added experience and some experiment, it might be possible to build these either in *pisé* or concrete, by using flue-pipes with a concrete lintel over fireplace openings, building in the latter subsequently with bricks.

The Ministry is satisfied that solid floors rather than wooden joists are desirable for the ground floors of *pisé* houses (Fig. 5). If the

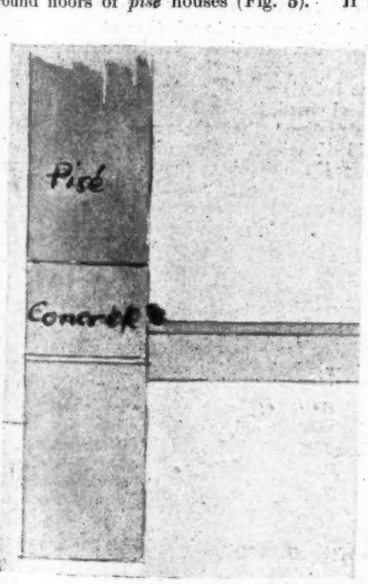


FIG. 5.

sand and lime finish inside is successful no wooden skirting need be provided. The brick or concrete base being carried up above the ground floor level some 3 in. or 4 in. could be painted black or treated with tar, thus eliminating the skirting.

HOUSING AND TOWN-PLANNING NOTES.

Manchester Housing Director.

The Manchester Housing Committee has recommended the appointment of Mr. F. W. Platt as Housing Director, in succession to Lieut.-Col. Smith, who has resigned. The salary is £1,250 per annum.

Scottish Housing Bill.

At the consideration of the Housing (Scotland) Bill in the report stage in the House of Commons oon Monday, a proviso was added to Clause I that a house should not be deemed to have been in *bona fide* occupation if it had not been continuously inhabited as a dwelling-house for at least one week in three months. As drawn, the Bill did not include furnished houses, and this amendment was introduced to meet the unanimous desire of the Committee which had considered the Bill that such houses should be included.

London County Council Housing Schemes.

In a report submitted by the Housing Committee to the London County Council on Tuesday last, it is stated that the first 582 cottages on the Roehampton estate, costing on an average £1,524 each (including land) and ninety self-contained flats on the Tabard Garden Estate, the average cost of which will be £315 per room, are to be let at the following weekly rents, exclusive of rates:—Houses: Living-room, two bedrooms, scullery, and bath, 14s. 6d. per week; living-room, three bedrooms, scullery, and bath, 15s. 6d.; living-room, parlour, three bedrooms, scullery and bathroom, 18s. 6d.; Tenements: One living-room and one bedroom, 11s.; one living-room and two bedrooms, 13s. 6d.; one living-room and three bedrooms, 15s. 6d. An average of the total annual outgoings of each house on the Roehampton estate will, it is estimated, amount to £129 8s. 6d., or £2 9s. 6d. a week, exclusive of rates. Of this sum £40 5s. 4d., or 15s. 6d. a week, will be paid by the tenant as rent, the balance of £89 3s. 2d., or £1 14s. 3d. a week, being met out of the public funds. The total average annual outgoings per tenement on the Tabard-street estate, including the cost of maintenance and management, interest, and sinking fund charges, are estimated at £80 16s. 10d., or £1 11s. 1d. a week. Of this, £31 12s. 3d. a year, or 12s. 2d. a week, will be received from the tenant as rent, while the deficiency, amounting to £40 4s. 7d. a year, or 18s. 11d. a week, will be met out of public funds.

The Finance Committee drew special attention to the financial position which will arise in the event of the rents being fixed on the basis proposed. "The deficiencies on the houses and tenements," it is stated, "will be borne by the State. The Council will, however, view with concern the magnitude of the deficiencies, which are due in the main to the enormously-increased cost of building, but are also due to some extent to the improved standard of accommodation and amenities prescribed by the Ministry of Health."

After considerable discussion the report was adopted.

WEEKLY HOUSING RETURN.

Progress of housing up to December 4:—Schemes submitted, 11,388; approved, 8,658. Lay-out schemes submitted, 6,858; approved, 6,233. House-plans submitted, 279,699 houses; approved, 163,671. Tenders submitted, 178,206 houses; approved, 163,758. Contracts have been signed for 130,867 houses.

Schemes dealt with during the week ended December 4:—Schemes submitted, 50. Lay-outs submitted, 54; approved, 44. House-plans submitted, 1,599; approved, 1,489. Tenders were submitted for 2,298 houses, and approved for 1,989. These schemes include the following:—

Applications.

URBAN.—Caerphilly, 14.6 acres; Heage, 11.6; Wolstanton United, 265.44.

LAY-OUTS.

URBAN.—Bilston, Birmingham, Caerphilly Carlton, Caterham, Chesterfield, Enfield, Fulham, Heanor.

RURAL.—Axbridge, Axminster, Aylsham, Bingham, Bromyard, Chertsey, Chesterfield, Chester-le-Street, Chipping Sodbury, Cowbridge, E. Ashford, E. Kerrier, Honiton, Maidstone, Newtown and Llanidloes, Okehampton, Ringwood, Rochford, St. Germans, Samford, Tavistock, Torrington, W. Ashford, Yeovil.

HOUSE-PLANS.

URBAN.—Aylesbury, 293 houses; Birmingham, 12; Carlton, 16; Chesterfield, 92; Clacton, 6; Barnet Valley, 108; Heage, 22; Ivybridge, 50; Leeds, 216; Llanelly, 10; Manchester, 54; Margate, 30; Warwick, 168.

RURAL.—Axminster, 14 houses; Aylsham, 8; Beaminster, 8; Bromyard, 2; Cannock, 15; Chertsey, 8; Chester-le-Street, 200; E Ashford, 42; E. Kerrier, 24; Henley, 12; Maidstone, 1; Newtown and Llanidloes, 6; Okehampton, 4; Rochford, 8; St. Germans, 10; Samford, 6; W. Ashford, 12; Wetherby, 16; Yeovil, 16.

COUNTY COUNCIL.—Lancashire, 10.

Approvals.

SITES.

URBAN.—Sheerness, 14 acres.

RURAL.—Cowbridge, 1a.67 acres; Morpeth, 13; Rotherham, 10.24.

LAY-OUTS.

URBAN.—Bilston, Birmingham, Callington, Carlton, Elland, Enfield, Farnborough, Gellygaer, Lytham, Rishton, Skelmanthorpe, Sleaford, S. Molton, Sunderland.

RURAL.—Aylsham, Beaminster, Bromyard, Chester-le-Street, E. Kerrier, Horncastle, Horsham, Oakham, Okehampton, Ramsbury, Rochford, St. Germans, St. Thomas, Samford, Tadcaster, Tavistock, Tewkesbury, W. Dean, Wetherby, Yeovil.

COUNTY COUNCIL.—Lancashire.

HOUSE-PLANS.

URBAN.—Aylesbury, 293 houses; Birmingham, 12; Carlton, 16; Clacton, 6; Farnborough, 24; Ivybridge, 50; Leeds, 216; Margate, 30; Quorndon, 12; Skelmanthorpe, 55; Warwick, 168.

RURAL.—Abergavenny, 6 houses; Aylsham, 8; Beaminster, 8; Brixworth, 3; Bromyard, 2; Cannock, 15; Chester-le-Street, 200; Cookham, 4; E. Kerrier, 24; Horncastle, 12; Horsham, 30; Neath, 77; Northampton, 2; Oakham, 2; Okehampton, 4; Potterspury, 2; Rochford, 8; St. Germans, 6; St. Thomas, 8; Samford, 6; Tavistock, 12; Tewkesbury, 4; Wetherby, 28; Wing, 8; Yeovil, 16.

COUNTY COUNCIL.—Lancashire, 10.

Tenders Approved.

URBAN.—Bracebridge, 26 houses; Brandon, and Byshottles, 189; Bristol, 148; Caerphilly 347; Carlton, 16; Chepping Wycombe, 12; Chislehurst, 24; Crewkerne, 26; Darlington, 80; Droylesden, 24; Eastwood, 4; Farsley, 32; Glastonbury, 36; Grays Thurrock, 100; Hay, 10; Horsforth, 50; Kirkburton, 18; Merton and Malden, 170; Newquay, 6; Newton Abbot, 2; Northampton, 10; Nottingham, 82; Oldbury, 50; Paignton, 14; Poole, 38; Quorndon, 2; Saxmundham, 6; Stroud, 16; Uxbridge, 18; Wealdstone, 39.

RURAL.—Axbridge, 2 houses; Blaby, 20; Blything, 4; Brixworth, 6; Buckingham, 4; Chester-le-Street, 200; Chorley, 2; Congleton, 10; Crediton, 2; Croft, 6; Gloucester, 12; St. Germans, 2; South Westmorland, 28; Spilsby, 12; Welton, 8.

Building Trades Exhibition.

Mr. H. Greville Montgomery, Director of the International Building Trades Exhibition, has been informed that His Majesty the King is graciously pleased to grant his Patronage to the forthcoming International Building Trades Exhibition.

THE BUILDING TRADE.

COSTING BUILDING WORKS.

WE have received the following letter on costing systems from Mr. T. Sumner Smith, of Manchester —

SIR,—There is in general a consensus of opinion that it is impractical to apply "costing systems" to building works, and "F. N. R." in his letter in your issue for the 3rd instant focuses attention to the reason why by his query "How will items be kept under the headings given in the quantities, both as to time and material?" Anyone who has examined and made a careful study of "costings" and is desirous of adopting a costing system to building works will sooner or later come against this stumbling block. Some contend that there is no material advantage or gain by the installation of an elaborate system of costing upon building works so long as the present method of quantity surveying remains in operation.

The object of a system of costings is to arrive at the actual cost in detail of each piece of work. To do this each operation must be carefully analysed and recorded—the amount of material used, the time expended upon the same, and the various on-costs ascertained. The on-costs usually present the greatest difficulty, and in practice these are taken over a given period and apportioned. In some instances the on-costs for the various processes are ascertained, as would be the case for bricklaying and plumbing, and again the difference between the on-costs for carpentry and joinery work.

Costing serves a two-fold purpose—a guide to the management, and to check estimating. From the data derived the management should be able to say whether the work had been effectively organised, all waste eliminated, the time expended reasonable, and the on-costs a minimum amount. Since estimating for building works in general is based upon bills of quantities, whose items in the main contain two incomparables—material and labour—and, further, embrace all the on-costs and profit, it is difficult to see what service costing can be in checking estimating. Without a careful and detailed analysis of the various kinds of materials in most items in bills of quantities, an analysis of the labour in each operation, and an analysis of the various on-costs, estimating in building works is nothing more than guesswork.

Costing building works does not make for more profit, but points the way to profits and losses. It should show which section of the work is the more profitable, and which section of the work is the least profitable. Indirectly it may be the means of increasing profits by taking on only the work which is the most profitable, by avoiding taking on work that is the least profitable, or by a re-arrangement in the organisation of the work as would result in the elimination of all unnecessary waste, and give a greater output at less cost. Despite the drawback that a system of costing would serve little or practically no useful purpose in checking estimating, founded on the basis of the present method of quantity surveying, it would, nevertheless, well repay its adoption on the ground of its usefulness in its aid to good management.

The possibilities of costing on building works are clearly discernible, for over 100 local authorities have adopted a system of costing on the same general principles for housing schemes that are being carried out by direct labour.

Costing and its twin—scientific management—are in their infancy. Anyone who adopts them must needs pay great attention to the nursing and rearing if he hopes to be successful. A thorough understanding of the basic principles which govern their existence is essential before embarking upon such an undertaking. So long as nothing is attempted beyond that which is comprehensible and kept within control, a system of costing might with advantage be installed on every building work. Let it be a simple one in the first case, based on broad general principles capable of development and expansion as circumstances and necessity arise. Details can be filled in at will as you advance in understanding and master the technique. You cannot hope to slip into a ready-made system of costing as you can a ready-made suit of clothes. The latter might fit you without even the slightest alteration and no doubt serve you with comfort, ease, and satisfaction, but in the former your requirements need careful consideration and the system made to suit.

As regards understanding and technique, these may be likened to a child acquiring the art of dancing. Only a precocious child would waltz after the first lesson: the average child must needs undergo a more lengthy training before it thoroughly understands and grasps the technique. Such exercises as walking, marching, breathing, simple physical exercises, and singing are necessary in its aid to acquire time and rhythm and suppleness of body before it can waltz with grace and ease. Some training is necessary before one can hope to understand and grasp the technique of costing. A knowledge of book-keeping and accountancy, a practical and intimate knowledge of building, how to compile statistics and assemble data, the purpose and use of graphs, how to plan and arrange methods of work, all these are essential, and not the least important is a thorough understanding of how work is executed and some idea of the time that may be occupied in the performance of a specific task.

When costing has been accomplished and done efficiently there remains the chief point of consideration—its application. It will avail nothing if costing is thoroughly done unless it is put to good use. Training in the building trade has been wrongly done for the average man to appreciate the value of costing or to put it into immediate practice. This can be best illustrated by an example in the form of a problem and its corollary. Let me state the problem:—

A contractor had ascertained by means of costing that a specific piece of work had cost £1 for material and labour, and the on-cost charges amounted to 15 per cent. When tendering for another job he used this ascertained data for similar work in every respect in making up his schedule of prices. What should have been the schedule rate to allow him a net profit of 10 per cent.?

At first glance this may appear a very simple problem to answer. I have used the simplest of figures to avoid complexity or confusion in the least degree. Also it is a problem that is in everyday use—in every item of bills of quantities. Hence, it is not an abstruse one, and is one that should be familiar to everyone engaged in the building trade, be he estimating clerk, builder, clerk of works, quantity surveyor, architect, or civil engineer. Do you know the solution of this common and everyday problem in the building trade? You don't! Why? Because you have been wrongly taught. Let us see how. Consult your estimating and price books. Students should put the problem before teachers in quantity surveying at technical schools, technical colleges and universities; members of the following institutes and associations should bombard the examiners and members on the Council:—Architectural Association, Royal Institute of British Architects, Society of Architects, Quantity Surveyors' Association, Surveyors' Institution, Institution of Civil Engineers, Institution of Municipal and County Engineers, Concrete Institute, Royal Sanitary Institute, Town-Planning Institute, and the Institute of Builders; and should you be favoured with a reply, it may take something after this form —

Ascertained cost of work	..	£1	0 0
On-costs 15 per cent, net profit 10 per cent—25 per cent. gross profit; 25 per cent on £1	..		5 0
Schedule rate		£1	5 0

This is an incorrect answer. Now for the corollary —A contractor had put down the sum of 25s. as the schedule rate to an item of some thousands of yards of common brickwork in a bill of quantities. He had estimated that the work would cost £1 per yard, and the on-costs would be 15 per cent. (3s.), and he had calculated upon making 10 per cent. (2s.) net profit. It was decided to enlarge the works by about 2½ times, and the contractor agreed to execute the work on time and material basis, and he was to receive in addition to every £1 expended on time and material 3s. for on-costs and 2s. for net profit by way of remuneration. What was the percentage of net profit he received? As a help towards a correct solution I should point out that 10 per cent. net profit is an incorrect answer.

Is it worth while to solve this problem and its corollary? Would not the correct solutions be of some service to you? Should you be an estimating clerk, discuss it with your employer, and if it has been the custom of your firm to work out the problem in the manner given above and you put before him the correct solution it ought to mean instant promotion and an increase in salary for you.

TRADE UNIONS AND HOUSING.

ON Wednesday this week, Dr. Macnamara stated in the House of Commons that definite and final Government proposals for increasing the number of men employed in the building industry would be laid before a meeting of the trade unions on Monday next.

In reply to a question in the House of Commons last week as to whether at Manchester a certain firm recently received a contract to build 1,000 brick houses; that, as there were not sufficient bricklayers to carry on the work at the desired speed, it was decided to adopt concrete construction; that thereupon the bricklayers notified their intention of deserting the brick houses if the simple system of building concrete blocks was carried out by unskilled labour, despite the fact that there was sufficient work upon the brick houses for at least three times as many bricklayers as were obtainable: and whether he would make representations to the trade unions concerned, Dr. Addison said he understood the question was being referred to the local Demarcation Committee for the Building Trade, and he hoped in this way a satisfactory solution of the difficulty would be found.

Captain Bowyer asked the Ministry to give full publicity to such cases when they arose, in order to elicit public opinion, and Colonel Ashley asked for an assurance that, if the matter were not settled within a week, the Minister would "show up" the trade union which was holding up work and preventing ex-Service men getting employment.

Mr. J. H. Thomas asked also for the circulation of information concerning those merchants and combines who were preventing progress being made with housing schemes because of the prices which they charged for materials. Dr. Addison said that point had been investigated recently by the Board of Trade, and he had no information beyond that contained in their report.

Dr. Macnamara (Minister of Labour), replying to a request by Sir W. Davison for an assurance that, if the negotiations with the building trade unions which had been in progress for sixteen

months to allow dilution so that at least 50,000 unemployed ex-Service men might be employed in building houses were not completed before the House rose, the Government would take steps to secure the employment of those men in house-building, said the Government hoped to meet the representatives of the building trade unions this week. He could give an assurance that he would do his best to be in a position before the House rose to say definitely what action the Government intended to take.

THE CONCRETE INSTITUTE.

Annual Dinner.

THE annual dinner of the Concrete Institute, held at the Holborn Restaurant on Thursday last week, was a very successful function. The chair was occupied by Mr. E. FIANDER ETCHELLS (President), and the gathering included Mr. John W. Simpson (President, R.I.B.A.), Sir Charles Ruthen (President, Society of Architects), Sir Alexander Gibb, Sir Henry Tanner, the Rev. S. A. Alexander (Canon of St. Paul's), Mr. S. B. Russell, F.R.I.B.A. (Chief Architect, Ministry of Health Housing Department), Mr. G. Topham Forrest, F.R.I.B.A. (Superintending Architect to the London County Council), Mr. W. B. Worthington (Vice-President, Institution of Civil Engineers), Capt. H. Riall Sankey (President, Institution of Mechanical Engineers), Mr. C. le Maistre (British Engineering Standards Association), Mr. Arthur Crow, F.R.I.B.A. (President, District Surveyors' Association), Mr. Bernard Dicksee, F.R.I.B.A., Monsieur T. J. Gueritte (Société des Ingéneurs Civils de France), Mr. Mervyn Macartney, F.R.I.B.A. (Surveyor of St. Paul's Cathedral), Lieut.-Col. H. S. Rogers (Surveyor of Prisons), Mr. A. Alban Scott, F.R.I.B.A., Mr. H. D. Searles Wood, F.R.I.B.A., and Mr. F. E. Wentworth-Shields.

After the loyal toasts had been honoured, SIR CHARLES T. RUTHEN proposed "His Majesty's Forces."

This was responded to by LIEUT.-COL. H. S. ROGERS, who referred to the extensive use and great value of concrete in the war. Reinforced bridges had been specially strong and specially difficult to destroy, and were also easily repaired. In one instance a bridge near Cambrai had been partially destroyed by the enemy and had also suffered from shell fire, but the Royal Engineers repaired it with such speed that heavy traffic was crossing it within eight days of commencing repairs.

MR. JOHN W. SIMPSON, proposing "The Concrete Institute," said the value of concrete building could not be over-estimated, and it was certain that it would play a big part in the erection of high buildings if the London County Council were to modify that sacred document, the London Building Act. If the building industry was to be restored to its pre-war prosperity, a cheaper method of building must be devised, and it appeared that concrete and reinforced concrete in some form or another would have to be turned to if progress in that direction were desired. He hoped the Institute would not devote its attention solely to cottage building, but would explore every avenue of the subject; there were more important matters than cottages to be dealt with.

THE PRESIDENT, in the course of his reply, said experiments with high buildings had been made at Babylon many years ago, and the result stood as a lesson to the present day.

In proposing the toast of "The Visitors," MR. WENTWORTH-SHIELDS urged the need for close co-operation between all concerned in the industry if the best results were to be obtained.

THE Rev. CANON ALEXANDER, in reply, said at present a very serious piece of work to the fabric of St. Paul's Cathedral was being carried out. They had been occupied for the past eight years in trying to get the dome standing on a firm base, and the end of that work was not yet in sight. He was afraid it might take a further 20 years to complete, although it might be done in half the time if the funds at the disposal of the authorities were larger.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the building trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
Aberdare	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Accrington	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
Altrincham	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
Ashton-under-Lyne	2/4	2/5	2/4	2/4	2/4	2/5	2/4		2/0–2/0½	
Barnsley	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Barrow-in-Furness	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
Barry	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Bath	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Bedford	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Birkenhead	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0½	
Birmingham	2/4	2/4	2/4	2/4	2/4	2/5	2/4		2/1	
Blackburn	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Blackpool	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
Bolton	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
Bournemouth	2/-	2/-	2/-	2/4	2/4	2/3	2/4		2/0–2/0½	
Bradford	2/4	2/4	2/-	2/-	2/-	2/-	2/-		1/9	
Bridgwater	1/10½	1/10½	2/4	2/4	2/4	2/4	2/4		2/1	
Brighton	2/-	2/-	1/10½	1/10½	1/10½	1/10½	1/10½		1/7½	
Bristol	2/4	2/4	2/-	2/-	2/-	2/-	2/-		1/9	
Burnley	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Burton-on-Trent	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
Bury	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½		1/11½	
Cambridge	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
Cardiff	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Chatham	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Chelmsford	1/11	1/11	1/11	1/11	1/11	1/11	1/11		1/8	
Cheltenham	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Chester	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Chesterfield	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
Colchester	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Coventry	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Crewe	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Darlington	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½		1/10½–1/12	
Derby	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Doncaster	2/1	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Dudley	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Durham	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½	2/2½		1/11½	
East Glam. and Mon. Valleys	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Exeter	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Folkestone	1/11	1/11	1/11	1/11	1/11	1/11	1/11		1/8	
Gloucester	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Grantham	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½		1/11½	
Grays	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Grimsby	2/4	2/4	2/4	2/4	2/4	2/4	2/3		2/1	
Great Yarmouth	1/11	1/11	1/11	1/11	1/11	1/11	1/11		1/8	
Guildford	1/11	1/11	1/11	1/11	1/11	1/11	1/11		1/8	
Halifax	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Harrogate	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Hartlepools	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Hastings	1/11	1/11	1/11	1/11	1/11	1/11	1/11		1/8	
Hereford	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Huddersfield	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Hull	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Ipswich	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Lancaster	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
Leamington Spa	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½		1/11½	
Leeds	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Leicester	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Lichfield	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½		1/11½	
Lincoln	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Liverpool	2/4	2/4	2/4	2/4	2/4	2/-	2/4		2/0½	
Llanelly	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
London	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Loughborough	2/4	2/4	2/4	2/4	—	2/4½	2/3		2/1	
Luton	2/-	2/-	2/-	2/-	2/4	2/4½	2/4		2/1	
Maidstone	1/11	1/11	1/11	1/11	2/-	2/-	2/-		1/9	
Manchester	2/4	2/4	2/4	2/4	1/11	1/11	1/11		1/8	
Mansfield	2/2½	2/2½	2/2½	2/2½	2/4	2/3	2/4		2/0–2/0½	
Merthyr Tydfil	2/4	2/4	2/4	2/4	2/2½	2/3	2/2½		1/11½	
Middlesbrough	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Newcastle-on-Tyne	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Newport, Mon.	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Northampton	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½		1/11½	
Norwich	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Nottingham	2/4	2/4	2/4	2/4	2/4	2/4½	2/4		2/1	
Oakham	2/1	2/1	2/	2/1	2/1	2/1	2/1		1/10	
Oldham	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
Oxford	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Plymouth	2/1	2/1	2/1	2/1	2/1	2/1	2/-		1/10	
Pontypridd	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Portsmouth	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Preston	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
Reading	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Rochdale	2/4	2/4	2/4	2/4	2/4	2/5	2/4		2/0–2/0½	
Rochester	1/11	1/11	1/11	1/11	1/11	1/11½	1/11½		1/8	
Rugby	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½		1/11½	
St. Albans	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/8	
St. Helen's	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
Scarborough	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½		1/11½	
Sheffield	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Shrewsbury	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½	2/2½		1/11½	
Southampton	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Southend-on-Sea	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/11½		1/9	
Southport	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
South Shields	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Stockport	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
Stockton-on-Tees	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Stoke-on-Trent	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½	2/2½		1/11½	
Stroud	2/-	2/-	2/-	2/-	2/-	2/-	1/11½		1/9	
Sunderland	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Swansea	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Taunton	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Torquay	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Wakefield	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Walsall	2/2½	2/2½	2/2½	2/2½	2/2½	2/3½	2/2½		1/11½	
Warrington	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
West Bromwich	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/1	
Wigan	2/4	2/4	2/4	2/4	2/4	2/4	2/4		2/0–2/0½	
Windsor	2/-	2/-	2/-	2/-	2/-	2/-	2/-		1/9	
Wolverhampton	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½		1/10½	
Worcester	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½		1/11½	
York	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½		1/11½	

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this number. Contracts iv; Competitions iv; Public Appointments lxxiv: Sales by Auction lxxviii. Certain conditions beyondthose given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.

BUILDING AND PAINTING.

DECEMBER 20.—**Chipping Sodbury.**—HOUSES, &c.—Erection of eight houses at Hawkesbury Upton and six at Badminton, and drainage works at both sites, for the R.D.C. Housing Architect, Chipping Sodbury. Deposit, £1 1s.

DECEMBER 20.—**Chorlton-cum-Hardy.**—TELEPHONE EXCHANGE.—Erection of a new telephone exchange. Director of Contracts, H.M. Office of Works, Storey's-gate, Westminster, S.W. Deposit, £1 1s.

DECEMBER 20.—**Glasgow.**—PAINTING.—Painting and cleaning works at the Police Office and Buildings, Southern Division, for the T.C. Office of Public Works, City Chambers, 64, Cochrane-street, Glasgow.

DECEMBER 20.—**Macclesfield.**—HOUSES.—Erection of 12 houses (in pairs), for the R.D.C. Mr. A. E. Bradburn, architect, 19, King Edward-street, Macclesfield. Deposit, £2 2s.

DECEMBER 20.—**Marple.**—HOUSES.—**Erection of 50 houses, for the U.D.C. Mr. D. J. Diver, surveyor, Marple. Deposit £1 1s.**

DECEMBER 20.—**Neath.**—HOUSES.—Erection of 367 houses in brickwork in various parishes, for the R.D.C. Thirteen contracts. Mr. D. M. Davies, Council Offices, Neath. Deposit, £2 2s. each contract.

DECEMBER 20.—**Orsett (Essex).**—HOUSES.—Erection of 22 houses under the Housing Acts in the Parish of South Ockenden. Mr. James Beck, Clerk to the Council, 2, Orsett-road, Grays. Deposit £3 3s.

DECEMBER 20.—**Thorne.**—HOUSES.—Erection of 29 houses at Stainforth, Doncaster, for the R.D.C. Messrs. F. Hopkinson & Co., architects, Worksop. Deposit, £2 2s.

DECEMBER 20.—**Uppingham.**—HOUSES.—Erection of 130 brick cottages in pairs, in various parishes, for the R.D.C. Mr. George Dolphin, architect, North-street, Uppingham. Deposit, £2 2s.

DECEMBER 21.—**Blean, Canterbury.**—HOUSES.—Erection of 20 houses (in pairs) on the Hunters Forstal site No. 1, in the Parish of Herne, near Herne Bay, Mr. F. A. Ward, Union Workhouse, Herne Common, Herne, near Herne Bay.

DECEMBER 21.—**Clutton.**—HOUSES.—**Erection of six houses on Temple Cloud. Messrs. Petter & Warren, architects, 74, Henford, Yeovil.**

DECEMBER 21.—**Lochinver.**—HOUSES.—Erection of six houses in three blocks at Lochinver, and also road work, for the Sutherland C.C. Messrs. Horne & Murray, architects, Golspie. Deposit, £1 1s.

DECEMBER 21.—**Manchester.**—REPAIRS, &c.—For general repairs and decorating at Five Cottages, Stenner-lane, Didsbury, for the T.C. City Architect, Town Hall, Manchester. Deposit £1 1s.

DECEMBER 21.—**Newport.**—ADDITIONS.—Construction of additional sanitary accommodation at the Newport High School for Girls, Newport, Mon. Mr. C. F. Ward, Architect, Town Hall, Newport, Mon.

DECEMBER 24.—**Nottingham.**—PAINTING.—For painting public lavatories (two contracts), for the T.C. City Architect's Office, Guildhall, Nottingham. Deposit, £1 1s. each contract.

DECEMBER 27.—**Middleton.**—HOUSES.—Erection of 64 houses, for the T.C. Borough Engineer, Town Hall, Middleton, Lancs. Deposit, £2 2s.

DECEMBER 27.—**Paisley.**—HOUSING.—For carrying out Whitehaugh Housing Scheme, for the T.C. Master of Works, 13, Gilmour-street, Paisley.

DECEMBER 28.—**Manchester.**—WALL.—Pulling down and setting back to the improved building line of the stone boundary wall at St. Mary's Church, Upper Moss-lane, for the T.C. City Surveyor (Improvement and Buildings Department), Town Hall, Manchester. Deposit £1 1s.

*DECEMBER 28.—**Stevenage.**—HOUSES.—Erection of 12 houses in Walkern-road, and eight houses in Haycroft-lane, for the U.D.C. Mr. Wm. Onslow Times, Clerk to the Council, Council Offices, Stevenage, Herts. Deposit £2.

DECEMBER 29.—**Birmingham.**—HOUSES.—Builders and contractors desirous of tendering for erection of houses on various sites are requested to send their names to Mr. Frank T. Cox, Housing Director, City of Birmingham, Moat-lane, Birmingham.

DECEMBER 29.—**Denton.**—HOUSES.—Erection of twenty-four houses on the Haughton Hill Estate, for the T.C. Mr. John B. Cooke, Surveyor, Town Hall, Denton. Deposit, £1 1s.

DECEMBER 29.—**Haltwhistle.**—HOUSES, &c.—(1) The construction of new sewers and roads on the Greencroft Estate; (2) erection of 139 houses, for the R.D.C. Mr. R. E. Hastewell, architect, Westgate, Haltwhistle.

DECEMBER 29.—**Kensington.**—DEMOLITION.—Demolition and excavation of the site in connection with the extension of the Savings Bank, Blythe-road, West Kensington, for H.M. Commissioners of Works. The Director of Contracts, H.M. Office of Works, Storey's-gate, S.W. Deposit, £1 1s.

DECEMBER 30.—**Llantrisant.**—REPAIRS.—Repairs to be executed at Nos. 271, 273 and 275, High-street, Gilfach Goch, for the R.D.C. Mr. Thomas Saunders, Surveyor, Council Offices, Pontyclun. Deposit, £1.

DECEMBER 31.—**Bermondsey.**—HOUSES.—Erection of three cottages in Orange-place, Lower-road, Rotherhithe, for the B.C. Mr. Fredk. Ryall, Town Clerk, Town Hall, Spa-road, S.E.16. Deposit, £2 2s.

DECEMBER 31.—**Cottingham.**—HOUSES.—Erection of 36 houses on land adjoining Southwoods-road, for the U.D.C. Mr. H. Andrew, Custom House Buildings, Whitefriargate, Hull. Deposit £4 4s.

DECEMBER 31.—**Dartford.**—Estimates, designs, and particulars are invited for the erection of a memorial cross in Scotch granite. Mr. S. Martin, Hon. Sec., "The Dees," Watling-street, Dartford, Kent.

DECEMBER 31.—**Howden.**—HOUSES.—Erection of three pairs of houses, at Broomfleet, E. Yorks, for the R.D.C. Mr. Stephen Piner, architect, Market-place, Howden. Deposit £1 1s.

DECEMBER 31.—**Macclesfield.**—ADDITION.—Erection of new classroom building, &c., at the County High School for Girls, Macclesfield, for the Chestershire C.C. Mr. H. Beswick, County Architect, Chester. Deposit, £2 2s.

JANUARY 1 1921.—**Newmarket.**—HOUSES.—Erection of six houses at Lode, for the R.D.C. Mr. S. J. Ennion, Clerk, Deva Chambers, Newmarket. Deposit, £2 2s.

JANUARY 1.—**Sandhurst (Kent).**—RENOVATION.—Renovation of the Old School, Lower-green, Sandhurst. Mr. R. Piper, Conghurst, Hawkhurst.

JANUARY 3.—**Kent.**—HOUSES.—Erection of houses for the staff and teachers, for the Kent Education Committee, County of Kent. Mr. W. H. Robinson, Council's Architect, 63, Sessions House, Maidstone. Deposit £2.

JANUARY 4.—**Kingussie.**—HOUSES.—Erection of six four-apartment houses, for the T.C. Mr. Alexander Cattanach, Burgh Surveyor, Kingussie.

JANUARY 4.—**West Riding.**—HOUSES.—Erection of 11 houses, 10 homesteads, and 8 pairs of cottages on the Eastley and Leathley Estate, for the West Riding Small Holdings Committee, County Land Agent, County Hall, Wakefield. Deposit, £1.

JANUARY 6.—**Bexley Welling, Kent.**—SCHOOL BUILDING.—Enlargement of the Bexley Welling Infants Council School by the addition of 80 places, for the Kent Education Committee. Mr. W. H. Robinson, Architect, 63, Sessions House, Maidstone. Deposit, £2.

*JANUARY 6.—**Birmingham.**—SANATORIUM.—Erection of West Heath Sanatorium. The Secretary, H.M. Office of Works, Storey's Gate, Westminster, London, S.W. 1. Deposit £1 1s.

JANUARY 10.—**Leeds.**—SUB-STATION.—Construction of a sub-station to be erected in Gledhow Wood-road, for the T.C. Messrs. Carby Hall & Dawson, architects, Prudential Buildings, Park-row, Leeds.

JANUARY 11.—**Gosforth.**—BUILDING.—Erecting a building to contain a steam disinfector in the Council's Smallpox Hospital grounds, South Gosforth. Mr. Geo. Nelson, Surveyor, Council Chambers, Gosforth.

JANUARY 14.—**Skipton.**—HOUSES, ROADS, AND SEWERS.—(1) Erection of 8 parlour houses and 10 scullery houses. (2) road-making and sewering. Tenders endorsed; (1) tender for Housing; (2) tender for street-making and sewering. Mr. Aldridge, Council Offices, Skipton. Deposit £1 1s.

JANUARY 17.—**West Ham.**—ALTERATIONS AND ADDITIONS.—Alterations and additions to the Fyfield Industrial School, near Ongar, Essex, for the County Borough of West Ham. Mr. John H. Jacques, Architect to the Education Committee, 2, Fen Court, Fenchurch-street, E.C. 3. Deposit, £5 Bank of England note.

NO DATE.—**Perry Bar.**—HOUSES.—Erection of 16 houses in Queslett-road, and 16 houses in Holly-lane, for the U.D.C.. Mr. Arthur McKewan, architect, 115–117, Colmore-row, Birmingham. Deposit, £2 2s.

NO DATE.—**Stalybridge.**—HOUSES.—Erection of 40 houses (Type No. 5), for the T.C. Mr. J. N. White, Borough Surveyor, Town Hall, Stalybridge. Deposit, £2 2s.

FURNITURE, MATERIALS, etc.

DECEMBER 20.—**Broadstairs.**—MATERIALS.—Supply of 500 tons of 2 in. granite macadam to the U.D.C. Mr. H. Hurd, surveyor, Broadstairs.

DECEMBER 20.—**Dundee.**—MATERIALS.—Supply of 100 tons of 4 in. by 4 in. Whinstone causeway setts, for the Harbour Trustees. Mr. J. H. Thompson, General Manager, Harbour Chambers, Dundee.

DECEMBER 20.—**Finchley.**—SLATES.—Laying and part supply of slates in connection with the Finchley Housing scheme. The Secretary, H.M. Office of Works, Storey's-gate, Westminster, S.W.1.

DECEMBER 29.—**Reading.**—ROAD MATERIAL.—Supply of road material to the Berks C.C. Lieut.-Col. J. F. Hawkins, County Surveyor, Shire Hall, Reading.

DECEMBER 22.—**London.**—NAILS, &c.—Supply of nails, brads, &c., for six months, to H.M. Commissioners of Works. Controller of Supplies, H.M. Office of Works, &c., King Charles-street, Westminster, London, S.W.1.

DECEMBER 23.—**Romford.**—CONCRETE TUBES.—Supply of about 240 yds. of circular reinforced concrete tubes, 18 in. diam., to the U.D.C. Mr. Charles T. King, Council Offices, Romford.

DECEMBER 25.—**Edinburgh.**—STORES.—The Commissioners of Northern Lighthouses invite tenders for the supply of stores. Supt., 84, George-street, Edinburgh.

JANUARY 1, 1921.—**Wakefield.**—KERBS.—Supply of York stone kerbs for housing scheme of the T.C. Housing Architect, Town Hall, Chambers, Wakefield.

JANUARY 3.—**Wakefield.**—ROAD MATERIAL.—Supply of road material to the West Riding of Yorkshire (Highways Committee). Mr. F. G. Carpenter, County Surveyor, County Hall, Wakefield.

JANUARY 6.—**Westminster, S.W. 1.**—LATHS.—Supply of plasterers' laths, first quality. Secretary, H.M. Office of Works, Storey's-gate, Westminster, S.W.1.

JANUARY 15.—**Hatfield.**—MATERIALS.—Supply of broken granite, slag, and tar-macadam, to the Herts C.C. Mr. A. Ernest Prescott, County Surveyor, County Surveyor's Office, Hatfield.

JANUARY 31.—Johannesburg—SANITARY FITTINGS.—Supply of sanitary fittings for a public convenience, Union Ground, Johannesburg. Messrs. E. W. Caring & Co., St. Dunstan's-buildings, St. Dunstan's-hill, London, E.C. 3. Deposit, £1 1s.

FEBRUARY 23.—**Madras.**—PIPES, &c.—Supply of stoneware pipes and specials, varying from 4 in. to 18 in. diam., and aggregating a total length of about 76 miles, for the Madras Corporation. Messrs. James Mansergh & Sons, Agents to the Corporation, 5, Victoria-street, Westminster, S.W.1. Charge 5s.

NO DATE.—**Prestwich.**—ASHBINS.—Supply of one gross of ashbins, for the Housing Department. Surveyor, Town Hall, Prestwich.

ENGINEERING, IRON AND STEEL.

DECEMBER 20.—**Easington.**—ELECTRICAL.—Provision of guards and earths to existing public lighting system in the village Ward of Easington Parish, to meet Post Office requirements. Mr. E. N. Simpson, Clerk, Parish Council, Easington, Co. Durham.

DECEMBER 20.—**Salford.**—IRONWORK.—For sewers tanks, filters, cast-iron pipes, valves, &c., at the Sanatorium, Nab Top, Marple, for the T.C. Borough Engineer, Town Hall, Salford.

DECEMBER 22.—**Rothwell.**—PIPES.—Supply of about 45 tons of 6 in. watermain pipes and specials, for the U.D.C. Mr. J. Southwart, Surveyor, Council Offices, Rothwell.

DECEMBER 26.—**Norwich.**—HEATING INSTALLATION—**Supply and fixing of heating installation at Churchmen House, St. Giles-street, for the Health Committee. Mr. A. E. Collins, City Engineer, Guildhall, Norwich.**

DECEMBER 29.—**Egypt.**—PIPES.—Supply of vertical cast-iron socket pipes and specials for Suez main drainage, for the Ministry of Public Works, Cairo. Enquiry Office, Dept. of Overseas Trade, 35, Old Queen-street, S.W.

DECEMBER 31.—**Birmingham.**—HEATING INSTALLATION.—For low-pressure heating and hot water, services for a portion of the Dudley-road Hospital, for the Board of Guardians. Messrs. Edwards & Shaw, consulting engineers, 105, Colmore-row, Birmingham. Deposit, £5 5s.

*JANUARY 3, 1921.—**Southwark, S.E.1.**—BOILERS.—Taking down of boilers, fittings, blow-down tank, &c., and transferring same and rebuilding foundation for the Guardians. Clerk to the Guardians, Southwark Union Offices, 51, Ufford-street, Blackfriars-road, S.E.1.

JANUARY 4.—**Bridgend.**—RAILWAY WIDENING.—For widening the railway for additional loop lines between Bridgend and Margam, for the G.W.R. Co. Engineer, Paddington Station, London.

JANUARY 4.—Dublin.—PAVING MATERIAL PLANT.—Supply and erection of plant for the manufacture of tar macadam, asphalte concrete and asphalte surface coat, for the T.C. Mr. Patrick Tobin, Secretary, Paving Committee, City Hall, Dublin.

JANUARY 10.—**Grays.**—PUMPING PLANT.—Supply of four crude oil engines, C.C. dynamos, centrifugal pumps, screens, travelling overhead cranes, and other machinery, for the Thurrock, Grays and Tilbury Joint Sewerage Board. Messrs. John Taylor & Sons, engineers, 36, Victoria-street, Westminster, S.W.1. Deposit, £5.

JANUARY 24.—Johannesburg.—STEEL FRAME BUILDING.—Supply to South African Railways Headquarter Offices, Johannesburg, of steel framed building forming extension to saw mill, Salt River Workshops. High Commissioner for the Union of South Africa, 32, Victoria-street, London, S.W. 1.

FEBRUARY 7.—**Pietermaritzburg.**—STEEL FRAMED BUILDING.—Supply of steel framed building for extension to locomotive and machine shops to the Union of South Africa. High Commissioner for South Africa, 32, Victoria-street, S.W.

FEBRUARY 14.—Palestine, &c.—CEMETERY CONSTRUCTION.—The Imperial War Graves Commission invite tenders for the construction of (a) four cemeteries in Palestine, (b) 26 cemeteries at Anzac (Gallipoli), (c) 14 cemeteries in Macedonia. Director of Works, Imperial War Graves Commission, 33–36, Baker-street, W. Deposit £10.

MARCH 4.—Bombay.—REFUSE DESTRUCTOR.—Manufacture, erection and equipment of a refuse destructor within the City for the incineration of 200 tons of refuse per day. Sir John Wolfe Barry, Lyster & Partners, Dartmouth House, 2, Queen Anne's Gate, Westminster, S.W.1. Charge, 5s.

MARCH 28.—**Simla.**—WATERWORKS PLANT.—Supplying, erecting and running for one month a new pumping plant, consisting of three units and steel rising mains, &c., with all fittings for the water supply, for the Simla Municipality. Mr. A. F. Henderson, c.o. Messrs. Henry S. King & Co., Cornhill, E.C. Charge £1.

NO DATE.—**Methley.**—PIPES.—Supply of about 330 yards of 3 in. cast-iron water main, together with screwdown hydrants, sluice, and wash-out valves, for the U.D.C. Mr. Thos. Thompson, surveyor, Red House, Methley.

ROAD, SANITARY, AND WATER WORKS.

DECEMBER 20.—**Chelsea.**—CARRIAGE WAY.—For repairing carriage way of Chelsea Suspension Bridge, for the L.C.C. Chief Engineer, County Hall, Spring-gardens, S.W. Deposit, £3.

DECEMBER 20.—**Kirkcaldy.**—ROADS.—Formation of roads and sewerage works at Dundonald housing site, Cardenden, for the District Committee. Messrs. William Williamson and Geo. B. Deas, joint architects, Royal Bank Buildings, Kirkcaldy. Deposit £1 1s.

DECEMBER 20.—**London, S.W.**—ROAD REPAIRS.—Repairing of carriageway of Chelsea Suspension Bridge, for the L.C.C. Chief Engineer, County Hall, Spring-gardens, S.W. Deposit £3.

DECEMBER 20.—**Stoke-on-Trent.**—SANITARY.—Conversion of 90 privy cesspools into w.c.'s, for the T.C. Health Dept., Stoke-on-Trent.

DECEMBER 21.—**Leatherhead.**—ROADS, &c.—Construction of roads and sewers in connection with the Council's Housing Scheme. Surveyor, High-street, Leatherhead, Surrey. Deposit £2 2s.

DECEMBER 21.—**Neath.**—ROADS AND BRIDGES.—Construction of new roads, bridges, &c., at Dulais Valley, for the R.D.C. Three contracts. Mr. D. M. Davies, Council Offices, Neath. Deposit, £5.

DECEMBER 21.—**Ongar.**—PUMPS.—Supply and erection of three 3 in. lead jack pumps and one 3 in. single barrel deep well pump, for the R.D.C. Mr. H. C. Phillips, Surveyor, Council House, Ongar, Essex.

DECEMBER 22.—**Brentwood, Essex.**—REPAIRS TO ROADS.—Repairs to roads at Highwood, Brentwood, in accordance with specifications prepared by Mr. T. Cooper, Engineer-in-Chief, Offices of the Board, Embankment, E.C. 4. Deposit, £1.

DECEMBER 23.—**Durham.**—WATER MAIN.—Providing and laying of 260 lineal yards of 3 in. cast-iron water pipes, &c., on housing site at East Hetton, for the R.D.C. Mr. Geo. Gregson, surveyor, 38, Saddler-street, Durham.

DECEMBER 25.—**Edinburgh.**—ROADS, &c.—Construction of sewers and roads, Wardie Housing Area (Granton-road), for the T.C. Mr. A. Horsburgh Campbell, engineer, 1, Parliament-square, Edinburgh.

DECEMBER 27.—**Whitefield.**—ROADS.—Reconstruction of Moss-lane, about 9,000 sq. yards, for the U.D.C. Mr. George M. Denton, Surveyor, Council Offices, Whitefield, Lancs. Deposit, £2 2s.

DECEMBER 29.—**Birmingham.**—CULVERT, &c.—Deepening of the Hockley Brook under Thimble Mill-lane, Aston, for about 300 yards, in which is included the reconstruction of a culvert 14 ft. 4 in. wide and about 50 yards long under the London & North-Western Railway, for the T.C. Mr. Herbert H. Humphries, City Engineer, The Council House, Birmingham. Deposit, £2.

DECEMBER 29.—**Whiston.**—SEWAGE DISPOSAL WORKS.—Construction of sewage tanks, &c., for the R.D.C. Mr. H. B. Ward, 15, Lord-street, Liverpool. Deposit £5.

DECEMBER 31.—**Devizes.**—CEMETERY EXTENSION.—Extension to Cemetery, for the Devizes and Roundway Joint Burial Committee. Mr. A. J. Randell, architect, 16, Market-place, Devizes.

JANUARY 1, 1921.—**France.**—CEMETERIES.—For the third programme of construction consisting of, approximately, 45 cemeteries in France and Belgium. Contract 1920 C., Secretary (Works Branch), Imperial War Graves Commission, 33-38, Baker-street, London, W.

JANUARY 4.—**Elham.**—SANITARY.—For the emptying of cesspools and pail closets in the parish of Lyminge, for the R.D.C. Mr. W. E. Mancock, Inspector of Nuisances, Lyminge.

JANUARY 4.—**London.**—REMOVAL OF REFUSE.—Collection, removal and disposal of refuse, whether (1) sewage and other refuse from conduits; (2) dust, rubbish, and other refuse from car sheds and other depots (except permanent-way depots), and (3) excavation rubbish and other refuse from permanent-way routes and depots, as may be required in connection with the Council's tramways. General Manager, London County Council Tramways, 23, Belvedere-road, S.E.1.

JANUARY 4.—**Wandsworth.**—ROADS.—Making-up and paving of Brudenell-road, Upper Tooting, for the B.C. Borough Engineer and Surveyor, 215, Balham High-road, S.W.17. Deposit, £5 5s.

Auction Sales, Tenders, etc.

✱DECEMBER 21.—**Colchester.**—Messrs. Thomas D. Brook & Son will sell, by direction of the Disposal Board, at Stanway Hutments, all the buildings and equipment. Auctioneers, 153A, High-street, Colchester.

DECEMBER 21.—**Walham Green, S.W.**— Sale at Bacher's Institute Hall, Walham Green, S.W., *re* Sam Lewis Trust, **without reserve**, building materials of twenty houses and shops and other structures. Auctioneers, 48, Gresham-street, E.C. 2.

✱JANUARY 4.—**Sussex.**—Messrs. Samuel Ridley & Hollis will sell, by direction of the Disposal Board, at Portslade Camp, Sussex, and at Southwick Admiralty Works, Sussex, camp and works buildings in corrugated iron and wood. Auctioneers, 156, North-street, Brighton.

JANUARY 10, 1921.—**Belgium.**—REINFORCED CONCRETE BRIDGE.—Tenders have been called for the construction of a reinforced concrete bridge at Tournai. A copy of the specification and blue print has been received in the Department and can be consulted by United Kingdom firms on application to the Enquiry Room, Department of Overseas Trade, 35, Old Queen-street, S.W.1.

JANUARY 11, 1921.—**London, E.C.**—Messrs. Fuller, Horsley Sons & Cassell will sell by auction in lots at the Commercial Sale Rooms, Mincing-lane, E.C.3., new building materials, plant and machinery, chemical plant. Auctioneers, 11, Billiter-square, E.C.3.

FEBRUARY 15.—**Surrey.**—Messrs. Knight, Frank & Rutley will sell in conjunction with Messrs. King & Everill, freehold modern residence known as "Oaklands" (a few minutes from Kenley Station, S.E. & C. Rly.); also residences, cottages, and "Garston Hall," each having considerable land. Auctioneers, 20, Hanover-square, W.1.

✱NO DATE.—**Prestatyn, North Wales.**—Messrs. Knight, Frank & Rutley will sell at the Victoria Hotel, Prestatyn, the Dawson Estate, comprising 121 acres. Auctioneers, 20, Hanover-square, London, W.1

Competitions.

(*See Competition News, page* 684.)

Public Appointments.

DECEMBER 18.—**London.**—Temporary Assistant Instructors in Handicraft (Woodwork). Education Officers, (E.C.2), L.C.C. Education Offices, Victoria Embankment, W.C.2.

DECEMBER 21.—**Llangollen.**—Clerk of Works required in connection with the Council's housing scheme, endorsed "Clerk of Works," Messrs. Berrington, Son & Watney, Prudential Chambers, Wolverhampton.

✱DECEMBER 24.—**Tavistock.**—Clerk of Works required by the U.D.C. in connection with their housing scheme. Mr. W. J. Martyn Wivell, Clerk to the Council, Council Offices, Tavistock.

✱DECEMBER 28.—**Hampton.**—Clerk of Works required by the U.D.C. for their housing scheme. Mr. Sidney H. Chambers, Surveyor to the Council, Public Offices, Hampton, Middlesex.

✱DECEMBER 30.—**Ampthill.**—Clerk of Works required by the R.D.C. Mr. H. J. Webber, Clerk to the Council, County Court Hall, Ampthill.

✱JANUARY 3.—**AYLSHAM, NORFOLK.**—Clerk of Works required by the R.D.C. for houses being built under the Housing Acts. Mr. Henry J. Gidney, Clerk to the Council, Aylsham, Norfolk.

✱NO DATE.—**Gold Coast.**—Draughtsman required for the Public Works Department for two tours each of 12 months. Crown Agents for the Colonies, 4, Millbank, London, S.W.1.

✱NO DATE.—**Tanganyika.**—Architect required by the Government of Tanganyika Territory (formerly German East Africa) for service in the Public Works Department for one tour of 20–30 months. Crown Agents for the Colonies, 4, Millbank, London, S.W.1.

✱NO DATE.—**Trinidad.**—Architectural Draughtsman required for the Public Works Dept. by the Government of Trinidad. Crown Agents for the Colonies, 4, Millbank, London, S.W.1.

BOOKS.

Modern Brickmaking. By ALFRED B. SEARLE. London: Scott, Greenwood & Son. Second edition. Price 21s. net.

This work is a very comprehensive treatise of 500 pages on brickmaking, and its illustrations (over 300 in number) delineate a great variety of modern plant and machinery. At the present time, when brickwork is such a difficulty, and many kilns are in an almost derelict condition, a volume of this kind should be valuable, as it is only by the adoption of up-to-date methods that brickmakers can hope to make good their industrial position. In these days of high fuel and labour costs, when we have reached the limits of passing costs on to the consumer, no out-of-date processes can long survive. The author begins with chapters on the nature, selection, preparation and transport of clays, and passes on in chapter 4 to consider hand moulding processes, and then in a chapter of over one hundred pages to various machines for dealing with plastic clay. Following this, questions of drying and dealing with semi-dry and dry materials are gone into. A good and very useful chapter on kilns follows, chiefly concerned with construction. Chapters follow on various special bricks, such as blue bricks, glazed bricks, hollow blocks and moulded bricks, in which we are glad to see attention drawn to porous bricks, which take nails, and have many potential uses in place of wood—so prone to decay—and are often preferable to breeze. We feel that this book should be of considerable value to those engaged in this important industry, written as it is by one enjoying a long experience of clays and dry products.

Gasfitting. By BRIGGS AND HENWOOD. London: Crosby Lockwood & Son. Price 6s. net.

A small book on gasfitting is much needed, and in the 170 pages of this little volume a great deal of useful information will be found. The authors claim twenty-five years of trade experience, so their viewpoint should appeal to the practical man. The book opens with a few pages on service laying, mostly concerned with cutting and connecting mains. Under internal gasfitting (8 pages) meter connections, runs through floors and testing are dealt with, and four pages follow on tools. The construction of meters is described, and then various burners for lighting. This is followed by chapters on shop and church lighting. High-pressure gas is touched upon, and appliances for cooking and heating are detailed. Gas governors are explained, and water-heaters described, after which we find some information about theatres and public halls, a short gas specification, an account of gauges, and a final eulogy of this illuminant.

In our opinion the arrangement of the subject matter might be much improved, but our main disappointment lies in the absence of details connected with the laying out of a scheme. The relation of pipe sizes to pressure and capacity, loss by friction, hints on the avoidance of elbows and many details of this kind are very incompletely dealt with, and their insertion in place of the description of some of the actual fittings for combustion of gas would, in our opinion, have rendered the book much more valuable. It contains eighty-six illustrations, and will be found quite useful; but we hope that in a second edition the authors will give attention to the points to which we have referred, and which we think would be of great service to architects and others, particularly when dealing with large or specialised installations.

OBITUARY.

WE regret to record the death, which took place last week, of Mr. J. S. Holliday, chairman and governing director of Messrs. Holliday & Greenwood, Ltd., contractors. Deceased, who was sixty-eight years of age, was a leading church worker at Sutton, where he resided, and was a trustee and hon. secretary of the Brixton Orphanage, a vice-president of the Lansdowne Ragged School, and a member for many years of the London City Mission. Messrs. Holliday & Greenwood, Ltd., erected the Victoria and Albert Museum, South Kensington, and amongst the many public offices deceased held at various times were: President of the London Master Builders' Association, President of the Institute of Builders, Member of the Council of the National Federation of Building Trades Employers of Great Britain and Ireland, Chairman of the London County Council School of Building for nearly twenty years, and a member of the Committee on Timber, Imperial Institute. His war services included the chairmanship of the Advisory Committee on ex-soldiers and sailors, and the chairmanship of the London Technical Advisory Committee for disabled ex-Service men.

The death took place, at Guy's Hospital, on December 9, in his seventieth year, of Mr. James Robert Scales, of Landsdown, Durlston-road, Kingston-on-Thames, a member of the Committee of the Incorporated Clerks of Works Association, who was well known in London, Liverpool, and Sheffield. He was originally a builder in his native town of Hertford.

The Surveyors' Institution Publications.

The Council of the Surveyors' Institution has come to the conclusion that a monthly publication, to include the papers and discussions at present contained in the *Transactions*, the *Professional Notes*, and other printed matter issued to members, would have the advantage of circulating information at more frequent and regular intervals, and would therefore be likely to prove more convenient to members. At the end of the present session, therefore, a publication will be issued monthly to comprise all the matter now circulated in different forms: but the *Transactions* will be included as a Supplement or Appendix, so that the papers and discussions may be bound separately.

THE HEATH HOLLOW BRICK.

WE have lately been shown samples of the Heath hollow brick which is being introduced in Great Britain by a British company, which will not manufacture but will license British manufacturers. The brick was invented by Mr. Heath, an architect of 30 years' experience, and we are informed that it is extensively used in Canada and the United States, and that a British patent has been obtained for it here. It can be produced by any brickworks which operates a wire-cutting machine, and the change may be effected in an hour by the attachment of dies. Only three machine processes are required to make the four forms of the brick, which are: A double brick 9 in. by 6 in. by 13½ in. (this form is also made in half-lengths, 9 in. by 6 in. by 6¾ in., without changing the die, the length being regulated by the wire-cutting machine).

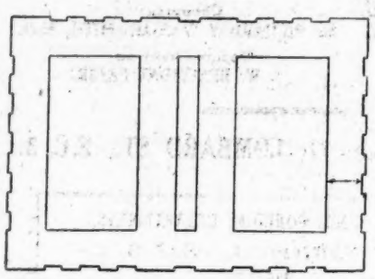
A single brick 4½ in. by 6 in. by 13½ in. (this form is made in half-lengths without change of the die, 4½ in. by 6 in. by 6¾ in.).

A corner and jamb brick (a second die being used), 9 in. by 3 in. by 6 in.

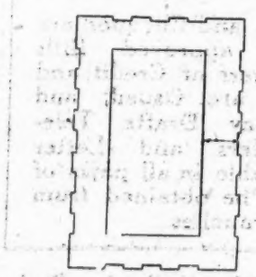
A pier and pilaster brick (the third die being used), 9 in. by 4½ in. by 6 in.

The following are some of the claims made for the brick:—

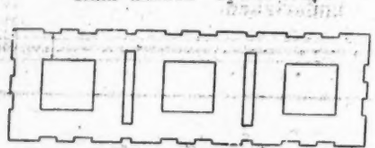
A given cubage of Heath hollow brick is produced by the consumption of only sixty per cent. of the clay required to make an equal cubage of common solid brick. A given quantity clay produces 66 per cent. more wallage than common solid brick. This result is because the voids in the brick represent 40 per cent. of the total bulk of the completed hollow brick. The bricks dry two days sooner, burn two days sooner, and cool ready for shipment two days sooner than common solid bricks. In their manufacture about 25 per cent. less fuel is needed, and there is a considerable saving of labour costs in manufacture and stacking in the stock piles. By making the brick in the three forms described, the manufacturer is providing the trade with the factors for every detail of wall construction. The bricks develop the box girder principle. The sealing of the inner void by the bricklayer insulates the two larger outer voids, and renders the wall warmer in winter, cooler in summer, drier at all seasons, and more sound-proof, than when common solid bricks are used.



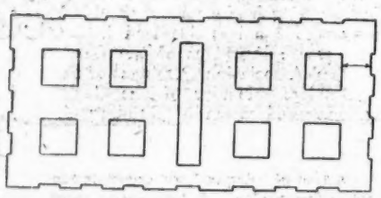
DOUBLE BRICK, FULL LENGTH—9″×6″×13½″.
HALF LENGTH—9″×6″×6¾″.



SINGLE BRICK, FULL LENGTH—4½″×6″×13½″.
HALF LENGTH—4½″×6″×6¾″.



CORNER AND JAMB BRICK—9″×3×6″.



PIER AND PILASTER BRICK—9″×4½″×6″.

The four shapes of Heath Tile.

The British Museum.

Recent additions to the Exhibition in the Gallery of Prints and Drawings at the British Museum include a set of rare colour prints from wood blocks by John Baptist Jackson (1701–1780). These are proofs, in perfect preservation, of large ornamental frames of flowers and fruit in bright colours, intended to contain woodcuts representing statues, together with oblong friezes, also of fruit and flowers, to be used as wallpapers. Among the modern etchings now exhibited are a number of specimens by Frank W. Benson, the American etcher of wildfowl and bird life, and smaller groups of etchings by W. Strang, A.R.A., Miss K. Cameron, W. Sickert, Miss S. Gosse, and J. Wheatley.

PATENTS

APPLICATIONS PUBLISHED.*

126,285.—Norton Co.: Anti-slipping tiles or treads.

126,286.—Norton Co.: Anti-slipping tiles or treads.

126,287.—Norton Co.: Anti-slipping tiles or treads.

130,327.—C. F. Cramer: Structural units for floors and roads.

130,998.—O. L. Borner: Apparatus for the production of hollow bricks closed on all sides and produced whilst pressing clay through a mouthpiece.

135,471.—H. E. Hagen and J. Kjolsrud: Manufacture of reinforced-concrete poles.

136,818.—Norske Aktieselskab for Elektrokemisk Industri Norsk Industri-Hypotekbark: Manufacture of porous material.*

137,049.—H. Colombelle: Apparatus for operating window frames or sashes.

138,332.—L. H. Guimonneau: Construction of walls.

138,847.—Aktieselskabet Russisk-Norsk Skogindustri: Method and apparatus for the manufacture of building sections for the construction of houses.

138,875.—Flintkote Co.: Method of making roofing material.

138,879.—Flintkote Co.: Coverings for roofs.

138,883.—Flintkote Co.: Manufacture of prepared roofing elements.

138,892: Flintkote Co.: Manufacture of prepared roofing elements.

140,393.—E. Otterstrom: Construction of brick walls.

140,788.—J. E. Zimmerman: Combination cooking and house water-heating ranges.

142,070.—J. Van Hamme: Bar fasteners.

145,779.—H. Colombelle: Supports for portable hand drilling machines.

149,988.—R. Boveroulle: Process for the manufacture of cement from slag.

151,441.—A. F. Jefferies: Floors and ceilings for buildings.

151,442: A. F. Jefferies: Building blocks.

151,456.—T. Harris and J. H. Chappell: Windows.

151,491.—J. McCrindle: Hinges.

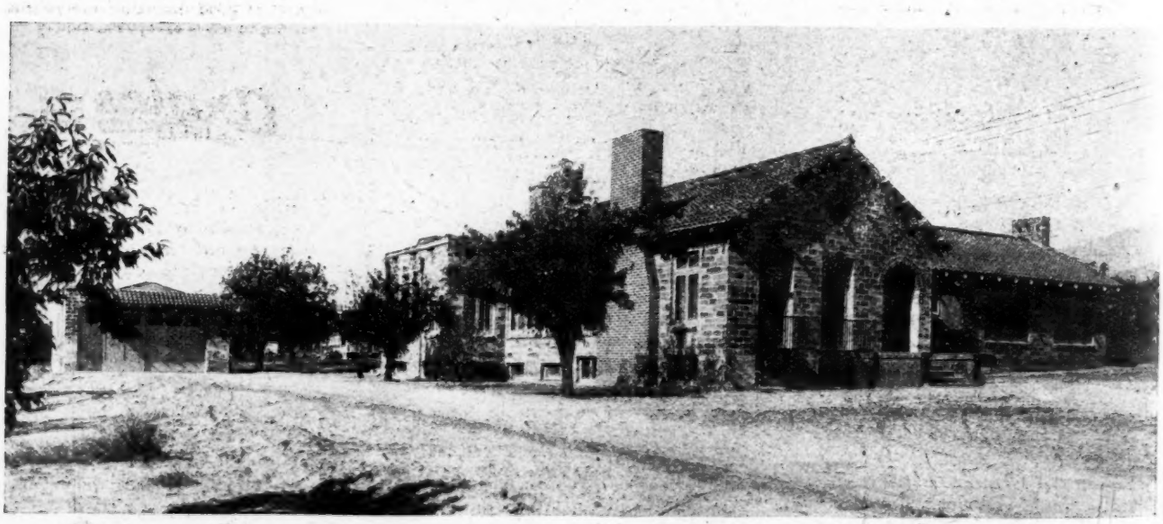
151,492.—W. Baldwin: Flexible joint for connecting steam boilers with the external walls and flues.

151,503.—S. Bridgwater and A. A. Owers: Boxes for the transport of cinematograph films.

151,531.—E. N. Goodlett: Vibrator or agitating device particularly for use in the mixing of concrete.

151,553.—A. S. Cox: Curved concrete slab roofs.

* All these applications are now in the stage in which opposition to the grant of Patents upon them may be made.



Building constructed with Heath Hollow Bricks.

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. Since our last issue, various prices have been revised.—Ed.]

BRICKS, &c.

	£ s. d.
Per 1,000 Alongside, in River Thames up to London Bridge.	
Best Stocks	4 17 0
Per 1000, Delivered at London Goods Stations.	
	£ s. d.
Flettons	3 17 0
Best Stourbridge Fire bricks	12 14 0
GLAZED BRICKS—	
Best White, Ivory, and Salt Glazed Stretchers	29 10 0
Headers	29 0 0
Quoins, Bullnose and 4½in. Flats	36 0 0
Best Blue Pressed Staffordshire	12 4 0
Do. Bullnose	12 9 0
Blue Wire Cuts	10 6 8
D'ble Str'tch'rs	38 0 0
D'ble Headers	35 0 0
One Side and two Ends	39 0 0
Two Sides and one End	40 0 0
Splays and Squints	37 10 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

	s. d.		
Thames Ballast	19 6	per yard,	delivered
Pit Sand	25 0		
Thames Sand	25 6	„ „	2 miles
Best Washed Sand	25 6	„ „	radius
½ in. Shingle for Ferro-Concrete	24 6	„ „	Paddington.
¼ in.	25 6	„ „	

Per ton, delivered in London area.

	£ s. d.		
Best Portland Cement	4 7 6	..	4 13 0
80/6 alongside at Vauxhall in 80-ton lots.			
Ferrocrete per ton extra on above.		.. ..	10 0
Best Ground Blue Lias Lime	2 19 6	at rly. depot.	

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks. The sacks are charged at 2s. 6d. each and credited at 2s. each if returned in good condition within three months.

Grey Stone Lime ..... 75s. 0d. per ton delivered.
Stourbridge Fireclay in s'cks 44s. 8d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	3 2½
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	3 5½
Do. do. delivered on road waggons at Nine Elms Depot	3 6½
PORTLAND STONE—	
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L. & S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 11½
Do. do. delivered on road waggons at above stations, per ft. cube	5 0½
White basebed, 3d. per ft. cube extra.	
NOTE.—½d ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.	
YORK STONE, BLUE—*Robin Hood Quality.* Delivered at any Goods Station London.	s. d.
Scappled random blocks ..... Per Ft. Cube	17 4
6 in. sawn two sides landings to sizes (under 30 ft. super.) ..... Per Ft. Super	11 10½
6 in. rubbed two sides, ditto ..... „	13 3½
3 in. sawn two sides slabs (random sizes) „	6 3
2 in. to 2½ in. sawn one side slabs (random sizes) ..... „	3 2
1½ in. to 2 in. ditto, ditto ..... „	2 9
HARD YORK— Delivered at any Goods Station London.	
Scappled random blocks ..... Per Ft. Cube	13 3
6 in. sawn two sides landing to sizes (under 40ft. super.) ..... Per Ft. Super	10 3
6 in. rubbed two sides ditto ..... „	12 1
4 in. sawn two sides slabs (random sizes) „	6 2
3 in. ditto, ditto „	4 11
2 in. self-faced random flags .. Per Yard Super	16 2

WOOD.

GOOD BUILDING DEAL.

Inches	£ s.	
4 × 11	67 10	per standard
4 × 9	67 10	„
4 × 8	60 0	„
4 × 7	50 0	„
3 × 8	48 10	„
3 × 7	47 10	„
2½ × 7	47 10	„
3 × 6	45 0	„
3 × 11	65 0	„
2 × 11	65 0	„
3 × 9	57 10	„
2½ × 9	57 10	„
3 × 4½	47 10	„
3 × 4	47 10	„

PLANED BOARDS.

1 × 11	67 10	„
1 × 9	65 0	„

PLAIN EDGE FLOORING.

Inches		
¾	40/-	square
1	45/-	„
1¼	52/6	„
1½	66/-	„
1¾	75/6	„

TONGUED AND GROOVED FLOORING.

Inches		
1	52/-	square
1¼	65/-	„
1¼	75/-	„

WOOD (*Continued*).

MATCHINGS (BEST).

Inches		
¾	36/-	square
¾	42/6	„
1	54/-	„

BATTENS.

Inches	£ s.	
1 × 2	45 0	per standard

SAWN LATHS.

Per bundle					0 6	6
Dry Wainscot Oak, per ft. super, as inch	0	3	6	to	0 4	0
½ in. do. do.	0	3	0	..	—	
Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch	0	2	6	to	0 3	0
Cuba, Mahogany	0	4	0	to	0 4	6
Teak (Rangoon, Moulmein or Java), per load	75	0	0	to	85 0	0
American Whitewood planks, per ft. cube	0	18	0	to	1 4	0
Scotch Glue, per cwt.	10	0	0	..	—	
Liquid Glue, per cwt.	6	12	0	..	—	

SLATES.

1st quality slates from Bangor or Portmadoc in truck load delivered London area. Per 1,000 of 1,200.

		£ s. d.
Best Blue Bangor Slates,	24 by 12	56 10 0
„ „ „	22 by 12	46 0 0
First quality „	22 by 11	42 10 0
„ „	20 by 12	42 0 0
Best Blue Portmadoc	20 by 10	36 10 0
„ „	18 by 10	29 10 0
First quality „	18 by 9	24 5 0
„ „	16 by 10	22 15 0
„ „	16 by 8	18 0 0

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or Staffordshire district	6 15 0
Ditto hand-made ditto	7 5 0
Ornamental ditto	7 2 6
Hip and valley tiles (per dozen)	0 15 0

METALS.

	£ s. d.
JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—	
R. S. Joists, cut and fitted	36 0 0
Plain Compound Girders	40 0 0
„ Stancheons	42 0 0
In Roof Work	46 0 0

WROUGHT-IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £15 net value delivered direct from works. 5 per cent. less above gross discounts, carriage forward if sent from London stocks.)

	Sizes up to and including ¾ in. Tubes.	Sizes up to and including 2in. Tubes.	Fittings.	Sizes 2½ in. to 6 in. Tubes.	Fittings.
Gas	+ 7½	+ 5	— 5	— 2½	— 17½
Water	+17½	+15	Net	+ 6½	— 15
Steam	+28½	+26½	+ 5	+ 16½	— 12½
Gal. Gas	+32½	+30	+ 5	+ 22½	— 7½
„ Water	+45	+42½	+ 10	+ 33½	— 5
„ Steam	+57½	+55	+ 15	+ 45	— 2½

L.C.C. COATED SOIL PIPES—London Prices ex works.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6 fts.	6 10	4 10	5 9½
2½ in. „	7 10½	5 4	7 3
3 in. „	9 8½	5 9½	8 8½
3½ in. „	10 9	7 3	10 2
4 in. „	11 9½	8 2½	11 7½

RAIN-WATER PIPES, &c.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6fts. plain	5 9	3 0	4 2
2½ in. „ „	6 4	3 7	5 0
3 in. „ „	7 6	4 6	6 8
3½ in. „ „	9 1	5 3	7 9
4 in. „ „	10 0	6 6	9 6

L.C.C. DRAIN PIPES,—9 ft. lengths. London Prices. 4 in., 14/-. .. 5 in., 17/9. .. 6 in., 21/5.

	Per ton in London. £ s. d.		£ s. d.
IRON—			
Common Bars	34 10 0	to	35 10 0
Staffordshire Crown Bars—good merchant quality	35 0 0	..	37 0 0
Staffordshire "Marked Bars"	36 10 0	..	38 10 0
Mild Steel Bars	32 0 0	..	34 0 0
Steel Bars, Ferro-Concrete quality, basis price	32 0 0	..	34 0 0
Hoop Iron, basis price	40 0 0	..	42 0 0
„ „ Galvanised	60 0 0	..	64 0 0
Sheet Iron, and Soft Steel Black—			
Ordinary sizes to 20 g.	40 0 0	..	42 0 0
„ „ „ 24 g.	41 0 0	..	42 0 0
„ „ „ 26 g.	43 0 0	..	44 0 0
Sheets Flat Best Soft Steel, C.R. & C.A. quality—			
Ordinary sizes, 6ft by 2ft. to 3ft. to 20 g.	50 0 0	..	52 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 22 g. and 24 g.	51 0 0	..	53 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 26 g.	53 0 0	..	55 0 0
Flat and Galvanised Corrugated Sheets—			
Ordinary sizes, 6 ft. to 9ft. 20 g.	40 0 0	..	41 0 0

METALS (*Continued*).

	Per ton in London £ s. d.		£ s. d.
Ordinary sizes, 6ft. to 9ft. 22 g. and 24 g.	41 0 0	..	42 0 0
Ordinary sizes, 6ft. to 9ft. 26 g.	43 0 0	..	45 0 0
Sheets Galvanised Flat, Best quality—			
Best Soft Steel Sheets, 6ft. by 2ft. to 3ft. to 20g. and thicker	48 0 0	..	49 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	49 0 0	..	50 0 0
Best Soft Steel Sheets 26 g.	50 0 0	..	52 0 0
Cut Nails, 3in. to 6in. (under 3in. usual trade extras.)	46 0 0	..	47 0 0

LEAD, &c.

	Delivered in London. £ s. d.		
LEAD Sheet, English, 4 lb. and up	42 0 0	..	—
Pipe in coils	42 10 0	..	—
Soil Pipe	45 0 0	..	—
Compo pipe	46 0 0	..	—

NOTE—Country delivery, 30s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

Old lead, ex London area, at Mills ..... per ton	23 0 0	..	—
Do., ex country, carriage forward ..... per ton	24 0 0	..	—
COPPER—			
Strong Sheet .... per lb.	0 2 3	..	—
Thin „ .... „	0 2 4	..	—
Copper nails .... „	0 2 3	..	—
Copper wire .... „	0 2 4	..	—
TIN—English Ingots „	0 2 6	..	—
SOLDER—Plumbers' „	0 1 4	..	—
Tinmen's „	0 1 9	..	—
Blowpipe „	0 2 0	..	—

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

	Per Ft.		Per Ft.
15 oz. fourths	7d.	32 oz. fourths	11d.
„ thirds	7½d.	„ thirds	1/-
21 „ fourths	9d.	Fluted, Obscured and Enamelled Sheet,	
„ thirds	9½d.	15 oz.	10d.
26 „ fourths	10d.	21 „	1/-
„ thirds	11d.		

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
¼ Rolled plate	6½d.
⅜ Rough rolled and rough cast plate	7½d.
½ Rough rolled and rough cast plate	8½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic Arctic, Stippolyte, and small and large Flemish white	7½d.
Ditto, tinted	9½d.
Rolled Sheet	7d.
White Rolled Cathedral	7d.
Tinted do.	9d.

PAINTS, &c.

	£ s. d.
Raw Linseed Oil in pipes ..... per gallon	0 5 3
„ „ „ in barrels .... „	0 5 5
„ „ „ in drums .... „	0 5 7
Boiled „ „ in barrels .... „	0 5 11
„ „ „ in drums .... „	0 6 1
Turpentine in barrels .... „	0 9 10
„ in drums (10 gall.) .. „	0 10 4
Genuine Ground English White Lead, per ton (in not less than 5 cwt. casks.)	73 15 0
GENUINE WHITE LEAD PAINT— "Father Thames," "Nine Elms," "Park," "Supremus" and other best brands (in 14 lb. tins) not less than 5 cwt. lots ..... per ton delivered	99 10 0
Red Lead, Dry (packages extra) .. per ton	54 0 0
Best Linseed Oil Putty ..... per cwt.	1 5 0
Filocol ..... per cwt.	1 0 6
Size. X D Quality ..... fkn.	0 5 9

VARNISHES, &c.

	Per gallon. £ s. d.
Oak Varnish ..... Outside	0 18 0
Fine ditto ..... ditto	1 0 0
Fine Copal ..... ditto	1 1 3
Pale Copal ..... ditto	1 2 6
Pale Copal Carriage ..... ditto	1 4 6
Best ditto ..... ditto	1 14 6
Floor Varnish ..... Inside	0 19 0
Fine Pale Paper ..... ditto	0 18 0
Fine Copal Cabinet ..... ditto	1 2 6
Fine Copal flatting ..... ditto	1 0 6
Hard drying Oak ..... ditto	0 18 0
Fine Hard drying Oak ..... ditto	0 19 0
Fine Copal Varnish ..... ditto	1 0 6
Pale ditto ..... ditto	1 2 6
Best ditto ..... ditto	1 14 6
Best Japan Gold Size	0 16 6
Best Black Japan	1 0 9
Oak and Mahogany Stain (water)	0 17 6
Brunswick Black	0 11 9
Berlin Black	0 19 9
Knotting (patent)	1 18 6
French and Brush Polish	1 14 0
Liquid Dryers in Terebine	0 16 0
Quirass Black Enamel	0 7 0

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

Since going to Press the prices of Lead have been reduced £2 per ton.

CURRENT PRICES FOR BUILDING WORK IN LONDON.*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	25	0
Add if in clay	" "	2	0
Add for every additional depth of 6 ft.	" "	1	6
Planking and strutting to trenches	per foot super	0	7½
Do. to sides of excavation, including shoring	" "	1	6

CONCRETOR.

		s.	d.
Portland cement concrete in foundation 1 to 6	per yard cube	55	0
Add if in underpinning in short lengths	" "	10	0
Add if in floors 6 in. thick	" "	4	0
Add if in beams	" "	5	0
Add if aggregate 1 : 2 : 4	" "	15	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	4	6

BRICKLAYER.

		£	s	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	50	15	0
Add if in stocks	"	12	10	0
Add if in Staffordshire blues	"	34	10	0
Add if in Portland cement and sand	"	4	15	0

FACINGS.

		s.	d.
Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1¼

POINTING.

		s.	d.
Neat flat struck or weathered joint	" "	0	0	3½

ARCHES.

		s.	d.
Extra only to the price of ordinary brickwork :—			
Fair external in half brick rings	" "	0	1	0
Axed in stocks	" "	0	2	0
Rubbed and gauged jointed in putty camber or segmental	" "	0	7	0

SUNDRIES.

		s.	d.
Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0	1	8
Setting ordinary register grates and stoves	each	1	5	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	6	15	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	9	0
Three-quarter-inch vertical damp course	" "	14	3
One inch on flats in two thicknesses	" "	12	0
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	6

MASON.

		s.	d.
York stone templates fixed	per foot cube	22	0
York stone sills fixed	" "	35	0
Bath stone and all labour fixed	" "	16	9
Portland stone fixed	" "	23	0

SLATER.

		s.	d.
Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	98	0
Do. 20 in. × 10 in. Do. Do.	"	115	0
Do. 24 in. × 12 in. Do. Do.	"	117	6

CARPENTER AND JOINER.

		s.	d.
Fir framed in plates	per foot cube	9	6
Do. joists	" "	10	6
Do. roofs, floors and partitions	" "	11	9
Do. trusses	" "	14	0

		¾"	1"	1¼"	1½"
Deal rough close boarding	per sq.	60/-	81/-	100/-	108/-

		s.	d.
Flat centering for concrete floor, including struts or hangers	"	68	0
Do. to beams	per ft. sup.	1	10
Centres for arches	"	2	4
Gutter boards and beams	"	1	9

FLOORING.		¾"	1"	1¼"	1½"
Deal edges shot	per sq.		82/-	104/-	120/-
Do. tongued and grooved	"		88/-	110/-	127/-
Do. matchings	"	74/-	89/-		

Moulded skirting, including backings and grounds	per ft. sup.	2/4	2/8	3/2	3/8

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super	2	0
Two Do. Do. Do.	" "	2	6
Add for fitting and fixing	" "	0	6
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights ; average size	" "	5	6

DOORS.		1½"	1¾"	2"
Two-panel square framed	per ft. sup.	2/8	2/11	3/1
Four-panel Do.	"	3/-	3/4	3/7
Two-panel moulded both sides	"	3/4	3/7	3/10
Four-panel Do. Do.	"	3/8	3/11	4/2

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	22	0

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	2/3	2/5	2/9
Deal shelves and bearers	"	2/-	2/2	2/3
Add if cross tongued	"	2/-	2/-	2/-

STAIRCASES.

	1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets	3/4	4/-	4/8	—	—
Deal strings wrot in both sides and framed "	4/6	4/9	—	—	—

		s.	d.
Housings for steps and risers	each	1	0
Deal balusters, 1 in. × 1¼ in.	per ft. run.	0	9
Mahogany handrail ; average 3 in. × 3 in.	" "	6	3
Add if ramped	" "	12	6
Add if wreathed	" "	25	0

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	9d.	Rim locks	2/6
Sash fasteners	1/-	Mortice locks	5/6
Casement fasteners	1/6	Patent spring hinges and letting in to floor and making good	20/-
Casement stays	1/3		
Cupboard locks	1/6		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	42	9
Plain compound girders	"	46	9
Do. stanchions	"	48	9
In roof work	"	52	9

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	2/-	2/6	3/9	4/3
Ogee Do. Do.	"	2/6	3/3	4/-	5/-
Rain-water pipes with ears	"	2/11	3/9		
Extra for shoes and bends	each	4/7	6/3		
Do. stopped ends	"	2/-	2/6	3/9	4/3
Do. nozzles for inlets	"	2/3	2/9	4/-	4/6

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	67	0
Do. Do. in flats	"	62	0
Extra labour and solder in coated cesspools	each	7	9
Welt joint	per ft. run.	0	6
Soldered seam	" "	2	1
Copper nailing	" "	0	8

		½"	¾"	1"	1½"	2"	4"
Drawn lead waste	per ft. run	1/1	1/9	2/-	3/7	4/6	
Do. service	"	1/8	2/2	2/8	4/3		
Do. soil	"						7/2
Bends in lead pipe	each					3/7	9/-
Soldered stop ends	"	1/4	1/10	2/3	3/2	3/10	
Red lead joints	"	1/-	1/2	1/5	2/1	2/8	5/5
Wiped soldered joints	"	3/2	3/10	4/6	5/5	7/2	10/10
Lead traps and cleaning screws	"				16/2	21/7	
Bib cocks and joints	"	7/6	11/3	18/-	48/-		
Stop cocks and joints	"	18/-	20/-	30/-	75/-		

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	3	4
Do. Do. Sirapite	" "	3	9
Do. Do. Keen's	" "	5	0
Add sawn lathing	" "	2	0
Add metal lathing	" "	3	6
Portland cement screed	" "	2	11
Do. plain face	" "	4	9
Mouldings in plaster	per 1 girth	0	3
One-and-a-half granolithic pavings	per yard sup.	6	11

GLAZIER.

		s.	d.
21 oz. sheet plain	per foot sup.	1	10
26 oz. Do.	" "	2	0
Obscured sheet	" "	2	3
¼ in. rolled plate	" "	1	3½
¾ in. rough rolled or cast plate	" "	1	4½
¼ in. wired cast plate	" "	1	9½

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	1	6
Knotting and priming	" "	1	0
Plain painting 1 coat	" "	1	6
Do. 2 coats	" "	2	4
Do. 3 coats	" "	3	2
Do. 4 coats	" "	4	0
Graining	" "	3	0
Varnishing twice	" "	2	6
Sizing	" "	0	4
Flatting	" "	0	9
Enamel	" "	2	0
Wax polishing	per foot sup.	0	11
French polishing	" "	1	9
Preparing for and hanging paper	per piece	2/-	to 5/-

* These prices apply to new buildings only. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

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3. Our Patented Wax Polish gives them a Finished Surface, Hard, Durable and Non-Slippery.

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PROPOSED NEW BUILDINGS AND OTHER WORKS.*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

ABDROSSAN.—At a public meeting of subscribers to the war memorial fund it was agreed that the memorial should take the form of a monument. The sum subscribed is £1,600.

BAKEWELL.—Plans passed: Three houses, Cemetery-road, for Mr. T. H. Newbould.—The U.D.C. has decided to erect 10 houses.

BASINGSTOKE.—The M.H. has held an inquiry into an application by the T.C. for sanction to borrow £770 for water supply works and £567 for street lighting.

BATH.—The Waterworks Committee have adopted a recommendation of the Public Bathing Place Sub-Committee in favour of constructing a new swimming bath for the Oldfield Park district. The Engineer was directed to proceed with the plans. It is suggested that the bath should be 150 ft. long and 40 ft. wide, with an average depth of 6 ft.

BEDFORD.—Extensions to works, for Messrs. W. H. A. Robertson & Co.; additions, 36, Foster Hill-road, for Mr. Warren; factory, Ampthill-road, for Messrs. F. & F. Moore; shed, St. Leonards-street, for Messrs. Astell Bros.

BELPER.—The R.D.C. has provisionally accepted tenders for houses at the rate of £967 for the parlour type and £857 for non-parlour type.

BEXHILL.—Plans passed by T.C.: House, Richmond-road, for Mr. G. E. Hart; house, Richmond-grove, for Mr. E. A. Wheatley; house, Westville-road, for Miss C. Frazer; house, Cooden Sea-road, for Mrs. Robbins; house, Cooden-drive, for Mr. J. W. Webb; additions to "Wayside Cottage," Cooden Sea-road, for Lady Redwood; alterations to Granville Hotel, Sea-road, for Mr. Dalpaich; and additions to Sussex Hotel, Sidley, for Messrs. Ballard & Co.

BRIGHTLINGSEA.—Alterations to "Sportsman" public house, for the Colchester Brewery Co.

BRISTOL.—At a meeting of Old Cliftonians it was decided that the school memorial should take the form of an arched gateway at the Clifton-road entrance to the school.

BUCKHURST HILL.—Bungalow, Palace Gardens, for Mr. H. E. Nadal; house, Luctons-avenue, for Mrs. Onwood.

CARNARVON.—The T.C. has decided to invite tenders for the erection of 100 houses.

CARSHALTON.—Plans passed: Additions to cottage, William-street, for Messrs. Hammerton & Co.; house, Rotherfield-street, for Mr. G. Hole; house, Uplands-road, for Mr. A. G. Cole; house, Hawthorn-road, for Mr. G. E. Wesley.

CHELSEA.—The managers of the Oratory R.C. school propose converting the boys and girls' middle schools into boys' and girls' central schools.

CHERITON.—The U.D.C. has approved of plans for two houses in Quested-road for Mr. Waters

CITY OF LONDON.—The licensing justices have sanctioned plans for alterations at "The Mail Coach," 1, Camomile-street; the Great Eastern Railway Refreshment Rooms, Liverpool-street; and Peele's Coffee House, Fleet-street.

COWES.—The Harbour Commissioners have decided to apply to the Development Committee for a grant towards constructing a breakwater for the protection of the harbour. The scheme, which had been postponed on account of the war, has the approval of the Board of Trade and the Admiralty, but the commissioners find themselves unable to commence the construction for want of funds. It was stated that the original estimate of the cost was £6,000, which has now increased to about £18,000.

DARTMOUTH.—Power is being sought in a Parliamentary Bill to alter and develop the harbour.

ECCLES.—The T.C. has received sanction from the M.H. to borrow £26,825 for a sewerage scheme.

EDLINGTON.—The Board of Education has held an inquiry at New Edlington, near Doncaster, into an application by the Rev. A. Leonard, Roman Catholic priest, and others, for permission to build a new elementary school for 200 Catholic children.

FARNHAM.—Plans passed by U.D.C.: Bungalow, Waverley-road, for Mrs. G. Heath; bungalow, Rowhills Estate, for Mr. Coombs; bungalow, Tilford-road, for Mrs. E. Spencer; house, Swingate-road, for Mrs. R. F. Souper; additions, 57, Downing-street, for Mrs. Goodridge.

GREASBOROUGH.—The U.D.C. has received the sanction of the Minister of Health to borrow £23,000 for housing purposes.

GREENWICH.—Drainage plans passed by B.C.: Mr. R. Mercer, 34, Wrottesley-road, Plumstead, at 1 to 20, Tamar-street, Charlton; Mr. W. H. Short, 54, Straightsmouth, Greenwich, at 110 and 112, West-street, Charlton; J. Hocking & Co., 38, Delafield-road, Blackheath, at Mr. A. Manchester's premises, Anchor and Hope-lane, Charlton; Mr. J. J. Forrest, 14, Swallowfield-road, Charlton, at "Blantyre," Westcombe Park-road; Tamsett & Co., 36, The Village, Old Charlton, at "Kent Villa," Shooters Hill-road; Mr. A. Dixon, surveyor, Whitbread & Co., Ltd., The Brewery, Chiswell-street, at the "Rising Sun," P.H., Norman-road; Mr. H. G. M. Laing, 9, Old-square, Lincoln's-inn, W.C., at Messrs. Sofnol, Ltd.'s premises, Charlton; Stephens Bros., 55, Hill-street, Woolwich, at 54, Delafield-road; J. Marsland & Sons, Ltd., York-street, at Rodney Foundry Co.'s premises, Deptford-green; Geo. Munday & Sons, Ltd., 9 and 10, Botolph-lane, at Messrs. Johnsen & Jorgensen, Ltd.'s premises, North-street, Charlton.

HACKNEY.—The L.C.C. has sanctioned the borrowing of £17,250 by the B.C. for paving works.

HIPPERHOLME.—The M.H. has held an inquiry into an application by the U.D.C. for sanction to borrow £3,960 for the provision of water filtration plant at Woodside.

HOLME CULTRAM.—Plan passed: Bungalow, Eastcote, for the Rev. H. F. Tilbury.

HORNSEY.—The B.C. has passed plans for four new dwelling-houses—one each in Lauradale-road, Highgate, Hornsey Lane-gardens, Fordington-road, Muswell Hill, and Cranley-gardens. A number of alterations have also been approved for a new entrance and alteration to staircase at the Finsbury Park Cinema.

HOVE.—Plans passed by T.C.: Mr. B. James, for Mr. W. Lewonskie, alterations, 30, Shirley-street; Mr. C. Whiteley, for Mr. V. Cave, pair of detached houses, Langdale-gardens; Mr. E. Watts, enlargement of attic windows, 33, Lansdowne-place; Messrs. Boniface & Son, for Messrs. Brighton Bros., wooden sheds, Davigdor-road; Mr. H. W. Sanders, for Mr. C. Matthews, conversion into two flats, 55, Sackville-road.

KEIGHLEY.—Plans passed by R.D.C.: Incubator shed at Whitley Head, Steeton, for Mr. R. Williams; two houses, King Edward-street, Sutton, for Mr. J. Bairstow; two houses at Scott-lane, Riddlesden, for Messrs. Scott & Hartley.

KENDAL.—Plans passed by T.C.: Storage shed, Kirkland, for the Westmoreland C.C.; washhouses, Captain French-lane, Mr. J. Stalker, for Mr. D. Quiggin.

KILSYTH.—The housing scheme was formally inaugurated last week, when the first sod for the scheme, which embraces fifty houses, was cut. In 1913 Kilsyth had a housing scheme on hand, the cost to be £362 per three-apartment house, but the Government delayed the work when the war broke out, and the cost, now is £1,019 16s. 4d. per three-apartment house.

KNARESBOROUGH.—The R.D.C. has decided to erect a cottage at the Follifoot Waterworks.

LINCOLNSHIRE.—Plans for a proposed light railway scheme, promoted by the Holland County Council of Lincolnshire, have been completed and are in the hands of the Ministry of Agriculture. The proposed light railway will be 80 miles in length and will run through the best and richest agricultural areas of that part of Lincolnshire. The scheme, of which Messrs. W. Alban Richards & Co., Ltd., 19, St. James's-street, S.W.1, are the consulting engineers, is estimated to cost, on a liberal estimate, £580,000.

LLANELLY.—A scheme for carrying out certain improvements at the Llanelly Railway Station has been approved by the Great Western Railway authorities. Special attention is to be directed to the parcels departments, which it is proposed to combine with the booking office into one spacious department. Extensive renovations will be effected.

LONDON.—The L.C.C. proposes to acquire the site for building in Shaftesbury-avenue, now occupied by the London Salvage Corps, and adapt them for use as a fire brigade station.

MANCHESTER.—At the last meeting of the T.C. sanction was given to various proposals including the following: Abergele Sanatorium, Children's Hospital, £453,751; Adult's Home and other works, £35,535—£494,286; purchase of land and properties in connection with proposed new street from Aytoun-street to Whitworth-street, £150,000; construction of arterial roads in South Manchester to provide work for the unemployed, £125,000; purchase of property in connection with the extension of the Town Hall, £100,000; establishment of an open-air school at Heaton Park, £5,500; for levelling and planting the old infirmary site in Piccadilly, £2,500.

NEW BRIGHTON.—Mr. Ernest Chambers, K.C., chairman of the Appeal Tribunal at the Ministry of Health, has allowed the appeal of the New Brighton Picture House Company, against the decision of the Wallasey Corporation, prohibiting the erection of a cinema in Victoria-street, New Brighton.

NEWBURY.—Bungalow, Chieveley, for Mr. Cann.

NEWPORT (MON.).—Messrs. John Lysaght, Ltd., have in contemplation the erection of a new river jetty on the east side of the River Usk which will accommodate vessels of between 2,000 and 3,000 tons.

NORWOOD.—The managers of the Jews' Hospital and Orphan Home propose to provide a new public elementary school for 400 children in the Asylum premises.

NOTTINGHAM.—The Estates Committee is advising the Council to place at the disposal of the Housing Committee a piece of land containing an area of 18,306 square yards, forming part of the Coppice estate of the Corporation for the extension of the present Coppice-road housing scheme.

POOLE.—The Harbour Board has decided to apply for a Government grant towards the carrying out of the first part of the harbour development scheme. This will consist of the erection of a training bank at the harbour entrance to keep clear the mouth of the harbour and admit larger vessels. The cost of this first instalment is estimated at £50,000.

PLYMOUTH.—Plans passed by T.C.: Mr. H. Trethewey, extension of store, 17, Drake-street; Mrs. Rolestone, extension of shop, Sevenfield House, Old Laira-road; Mr. E. Goldman, sanitary conveniences, Granby Hall, Princess-street Ope; Mr. J. E. Weeks, garage, 71, Mutley-plain; Mr. F. J. Sluman, extension of stores, 9, Gascoyne-place.

SCARBOROUGH.—Amongst new schemes under consideration by the Corporation are the erection of a café on Oliver's Mount, the construction of a roadway on the edge of the cliff from the South shore bungalows to the bathing pool to enable people to reach the pool at high tide, and the erection of 20 additional bungalows in the North Bay.—Plans have been passed for alteration, &c., at 1, Albion Villas, Albert-road, submitted by Mr. T. B. Whinney, architect, on behalf of the London Joint City & Midland Bank.

SEDGEFIELD.—The R.D.C. has passed plans for alterations to West Chilton Farm, for Mr. H. Stobart; alterations, Stopforth Farm, for North Bitchburn Coal Co.; house, Tursdale Colliery, for Messrs. Bell Bros.

SOUTH LONDON.—The Newington Justices have approved plans as to certain alterations intended to be carried out in the following houses: "Barkworth" Tavern, 63, Barkworth-road, Camberwell, A. C. Mogford; "Rosemary Branch," beerhouse, 79, Knight's-hill, West Norwood, Lambeth, Mary Drew; "Horse and Groom," 122-124, Westminster Bridge-road, C. Mennie; Waterloo Station Refreshment Room, Waterloo-road, A. E. Hanford (secretary); Best's "Brewery Tap," Larkhall New Brewery, Larkhall-lane, Clapham, A. C. Searle. Applications for consent to alter the under-mentioned houses have been adjourned for a committee of the justices to view the places: "Flowers of the Forest," Blackfriars-road, St. George's, M. Garwood; "Winchester Hall," Great Suffolk-street, St. George's, R. T. Rice; "Queen," Commercial-road, Camberwell, S. Groutage; "The George," 88, Gravel-lane, Christchurch, W. G. Illingworth, jnr. The justices have also adjourned to the annual general meeting an application by Messrs. Barclay, Perkins & Co., Ltd., for sanction to rebuild and extend "The Rose," Westmacott-street, Camberwell (Edward Harcourt Hoare), to enable a committee of justices to view the place.

SOUTH SHIELDS.—Plans passed by T.C.: Mr. F. W. Newby, for Dr. F. Blair, alterations to Thorney House, Laygate; Messrs. T. A. Page & Son, for Mrs. Curtis, alterations, 18, The Lawe; Messrs. Wm. & T. R. Milburn, for Mr. R. Thornton, amendment to Bioscope Room, Theatre Royal, King-street; Mr. F. W. Newby, for Mr. Geo. Gallon, bungalow, North side of Hepscott-terrace.

SWANSEA.—A deputation of the Governors of the Swansea University College waited upon a joint meeting of the Swansea Parliamentary and Estates Committee, and asked to be allocated a site for temporary buildings to house the larger science department of the college, and also to put Singleton Abbey in a state of suitable repair, so that the Faculty of Arts might be commenced in October next year. The Borough Architect explained the details of the proposed alteration to Singleton Abbey, and estimated the cost at £12,000 to £15,000. It was decided to limit the expenditure to £10,000 on the part of the Corporation, and to let the abbey and an adjoining site at an annual tenancy of a shilling a year.

TEIGNMOUTH.—The U.D.C. has received sanction from the M.H. to borrow £1,400 for gasworks extensions.

TENTERDEN.—The R.D.C. has passed plans for a bungalow at Appledore and for alterations at Chequer Tree Farm, Wittersham.

WEDNESBURY.—The T.C. has agreed to purchase a piece of land in Walsall-street for £1,500, for the purposes of a pleasure garden and street improvements

WEYMOUTH.—Plans passed by T.C.: Rebuilding back premises, 22, St. Alban-street for Messrs. S. J. Board & Son; garage, "Elidor," Birdcleaves-road, for Messrs. Crickmay & Son; drainage, 135, Chickerell-road, for Messrs. Jenkins, Hitt & Grant; two bungalows, for Mr. R. Harp.

WOLVERHAMPTON.—At a special meeting of the Education Committee it was decided to establish a Secondary School in the borough at the premises of the Newhampton-road Muncipal School.

WORTHING.—Plans passed by T.C.: Conversion of 111, Marine-parade into flats, Messrs. Patching & Co., for Miss Howlett; workshop, 114, Ham-road, for Mr. E. Greavett; alterations and additions, 19, The Broadway, Brighton-road, Mr. J. E. Lund, for Mr. D. Firth; three detached one-story timber-framed dwelling houses on the north side of Ham-road, west of Ladydell-road, Mr. H. M. Potter, for Messrs. G. & F. H. Arundell; motor garage, 23, Downview-road, Mr. H. M. Potter, for Mr. W. Warren; stables and coach-house, "Willmar," High-street, Tarring, Messrs. A. Churcher & Son, for Mr. W. Todd; 24 semi-detached dwelling houses, Westbourne-avenue, for Messrs. F. Sandell & Sons; addition, house, Upper High-street, Mr. B. J. Blaker, for H. Kennard; garage, Ripley-road, Mr. T. R. Hyde, for Mr. G. Harwood; basket warehouse, Mr. E. A. Shaw, for Mr. T. J. Poupart; house, Lawrence-avenue, for Messrs. Hoare & Co.; house, Windsor-road, for Mr. D. B. Spencer; two semi-detached houses, Boundary-road, for Mr. W. A. Goring; addition, 36, Shakespeare-road, for Messrs. Patching & Co.; conversion of cowshed into dwelling house, St. Lawrence-avenue, Mr. A. M. Butler, for Mr. E. J. Parham.

FIRES.

BIRMINGHAM.—Extensive damage has been caused by a fire which occurred at the works of George Tucket Eyelet Co., Ltd., Jameson-road, Gravelly-hill.

BLAKENEY.—A fine old farm residence, owned by Mr. Wait, was entirely consumed by fire last week.

PENGAM.—The Alexandra Hotel and a workshop of the Pengam Motor and Coach Building Co. has been severely damaged by fire.

LEITH.—Fire has destroyed the firewood factory at Restalrig-road, belonging to Messrs. J. Neil & Co.

*See also our List of Competitions, Contracts, etc.

TRADE NEWS.

The London Warming and Ventilating Co., Ltd., ask us to state that the position with regard to supplies of anthracite coal in London is much better now than it has been for a long time, and anthracite in reasonable quantities can be procured from several London merchants, whose names they will furnish to anyone experiencing difficulty in obtaining supplies.

A new casement window fastener has now been put on the market by Messrs. Hayter, Ltd., of 82, Victoria-street, S.W.1, the makers of the "Hayter" tube-stay and other window fittings. The patent movement known as the "Hayter Cam-Lever" is embodied in the fastener, and by means of this movement a lock which makes rattling impossible is obtained. The fastener is being made with both oxydised and black finish.

The Pope Electric Lamp Works, Hythe-road, Willesden, were started in 1904 by Mr. F. R. Pope, one of the pioneers in the electric lamp industry. Since that time the works have been extended, and the equipment is already taxed to the utmost capacity. In view of the increasing demand which is being experienced, arrangements have been completed for further considerable extensions which are likely to be commenced in the immediate future. "Elasta" drawn wire lamps, vacuum and gas-filled types, and "Pope" carbon filament lamps are made at this factory. The principal types of lamp manufactures at the Pope Electric Lamp Works, in addition to the standard "Elasta" drawn-wire vacuum and gas-filled types, may be summarised as traction, ship, railway, candle, &c., as well as the carbon filament lamp. The works are organised on a very efficient system, and the large staff of workers are highly trained. The firm has its own mess-rooms for the workers, and a social club. In the repair shop attached to the factory facilities are provided for the quick repair of machinery. In view of the constant expansion of the business it was recently decided to remove the headquarters of the sales organisation to the West End of London, at "Elasta" House, 5, Arthur-street, New Oxford-street, W.C. 2.

We have received from the Thames Paper Co., Ltd. (Purfleet, Essex) some samples of a new wall-board they are manufacturing. This material, called the "SX" board, is a tough homogeneous, wood-fibre board, in combination with other vegetable fibres, which have the effect of increasing the tensile strength. The fibres are first felted together in thin sheets, which are afterwards combined with a strong mineral cement—the resultant product being a rigid, non-conducting material with an attractive white matt surface. It is moisture resisting, and more fire-resisting than wood, the resinous matter having been removed in the manufacturing process, while the cement binder is itself highly fire resistant. One of the advantages claimed for this material is the ease with which it can be fixed. Nailing the sheets to the studs or ceiling joists, and covering the joints with a panelling strip is all that is necessary. The sheets are in standard sizes, but can easily be cut with a fine set saw; a space of an eighth of an inch should be left between the boards where nailed. Flat-headed galvanised or sherardised nails are recommended. Each board should be nailed along all four sides. The nailing up of the board is best done when all windows and doors are fixed. The wood fillets which are placed over the joints can be arranged to produce panelled effects, and give scope for a variety of treatments. A distemper has been found to give excellent results, while a standard oil paint has also been used without any priming coat or preliminary sizing.

Land for Housing.

At the Surveyors' Institution, Westminster, Mr. Howard Martin, Official Arbitrator under the Acquisition of Land (Assessment of Compensation) Act, 1919, recently heard a claim by the Weald Villages, Ltd., against the Wealdstone U. D. C., concerning the Council's compulsory acquisition of 23¼ acres of land for housing purposes.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him *not later than first post on Wednesday.*

*** Denotes *accepted*. † Denotes *provisionally accepted*.**
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modifications*.

ALCESTER.—For the erection of 160 houses on 16 sites. Mr. Harold E. Dick, M.S.A., architect, Evesham:—

For 28 houses, Site No. 2:
*Alcester Builders, Ltd., Alcester £23,996 3 0

For 10 parlour type, Site No. 1:
*H. W. Trout, Astwood Bank, nr. Redditch 9,094 12 11
*H. Boot & Sons (London), Ltd., Handsworth—Basis prices agreed for prime cost under Contract No. 3, for 122 houses in district:—

	Per house.
Non-parlour Type "A 1" ..	£810 12 9
Non-parlour Type "A 2" ..	781 7 6
Non-parlour Type "A 137" ..	857 8 10
Parlour Type "D"	920 6 11

BARRY.—For the erection of two classrooms, &c., at the Barry Girls' Intermediate School, for the Glamorgan Education Committee. Mr. D. Pugh Jones, F.S.A., F.S.I., County Architect, Cardiff:—
*Vickery Bros., Barry..... £2,796 7 8

BATH.—For construction of roads and sewers at Englishcoombe housing scheme, for the T.C.:—
*E. Ireland, Bath £11,609

BEDFORD.—For erection of eight houses at Sharnbrook, for the P.D.C.:—
*C. Clayson & Son, Harrold, per pair £1,644 10

BLAIRGOWRIE.—The T.C. has accepted the tenders of the following firms for work in connection with the housing scheme:—Mason, Ex-Bailie Hill; joiner, R. Bell & Son and T. Steven & Son; plumber, W. Donald; plasterer, Joseph Bell; slater, H. Leith & Son; lather, John Donelly.

BRADFIELD.—For the erection of two pairs of cottages, near Hill Foot Farm, for the R.D.C. Mr. Basil Sutton, A.R.I.B.A., architect, Lambourn, Berks. Quantities by Mr. J. R. Greenaway, F.S.I.:—

T. L. Hillier, Southend, Bradfield	£3,619	1	6
Houlton & Beeson, Pangbourne, Berks	3,839	1	2½

BURNTISLAND.—For laying out site for the housing scheme of 138 houses at the Haugh, for the T.C. Mr. J. A. Waddell, Burgh Surveyor. Quantities by Burgh Surveyor:—

A. Wilson, Cowdenbeath ..	£7,030	8	7
Carlingnose Granite Co., N. Queensferry	10,074	9	3
A. H. Roberston, Inverkeithing	9,597	18	11
W. Arnott, McLeod & Co., Ltd., Edinburgh	11,591	4	5
G. P. Trentham, Ltd., Edinburgh	8,359	1	7

CANTERBURY.—For erection of 40 houses on the Forty Acre site, for the T.C.:—
*London Building Co...Type "A" £547 5s. per house, to be erected in blocks of four; Type "B," £1,109 5s. per house, to be erected in pairs.

ETON.—For the erection of houses and road construction on the Iver Heath, Denham, Farnham Common, and Hitcham sites, for the R.D.C.:—
IVER HEATH (12 Class "B" and 8 Class "A")—For houses only.
H. Boot & Son, London—£11,992 17s. 4d. and £7,019 19s. 2d.
Purnell & Clifford, Reading—£12,044 and £7,008.
Gutteridge, Peterboro'—£12,745 and £7,602.
Y. J. Lovell & Son, Gerrard's Cross—£13,828 and £8,077.
Simplex Construction Co., Uxbridge—£14,003 and £8,106.
Payne Bros., Watford—£14,773 and £9,079.
J. T. Lane, Colnbrook—£16,426 19s. and £9,515 6s
DENHAM (4 Class "B" and 4 Class "A")—For houses and roads.
H. Boot & Son, London—£7,784 18s. 2d.; £1,695 11s.
Gutteridge, Peterboro'—£8,383; £1,615.
Y. J. Lovell & Son, Gerrards Cross—£9,086; £1,694.
Simplex Construction Co., Uxbridge—£9,375; £2,600.
W. E. Black, Uxbridge—£8,744 (houses only).
S. E. Johnson, Denham (Interloc Construction)—£8,551; £1,947.
S. E. Johnson, Denham (Ordinary Construction)—£9,595; £1,947.
Payne Bros., Watford—£10,213; £1,936.
Langley & Johnson, Slough—£1,650 2s. 9d. (roads only).
FARNHAM ROYAL (6 Class "B" and 2 Class "A")—For houses and roads.
H. Boot & Son, London—£7,896 3s. 7d.; £779 8s. 7d.
Purnell & Clifford, Reading—£8,077; £890.
Gutteridge, Peterboro'—£8,528; £700.
Y. J. Lovell & Son, Gerrards Cross—£9,316; £847.
Langley & Johnson, Slough—£779 2s. (roads only).
HITCHAM (20 Class "B" and 4 Class "A")—
H. Boot & Son, London—£11,279 3s. 2d., £11,160 17s. 4d., £1,025 17s. 6d. for houses; £1,085 3s. for roads.
Purnell & Clifford, Reading—£11,497, £11,637, £767 for houses; £1,261 for roads.
Gutteridge, Peterboro'—£11,954, £11,814, £1,377 for houses; £1,081 for roads.
H. D. Bowyer, Slough—£12,450, £12,060, £895 for houses; £865 for roads.
Langley & Johnson, Slough—£1,042 (roads only.)

GLASGOW.—For flooring for dancing hall at Exhibition Buildings, for the T.C.:—
*T. Henderson £256 8

HOVE.—For erection of building for refuse crushing machinery, &c., for the T.C.:—
*McKellar & Westerman, Hove £11,184

KNARESBOROUGH.—For (*a*) lay-out, and (*b*) construction of sewers, at Killinghall:—
*(*a*) Kershaw & Hill..... £117 0
*(*b*) C. H. Dickinson..... 143 18

LANCASTER.—For the erection of one pair of bungalows at the War Memorial Village, Westfield. Messrs. T. H. Mawson & Sons, architects, Lancaster and London. Quantities by the architects:—

R. L. Dilworth (excavator, drainer, waller, bricklayer), Lancaster	£704	3	10
R. S. Wright & Sons (carpenter and joiner), Queen-square, Lancaster	247	10	0
Till & Gardener (slater and plasterer), Aldcliffe-road, Lancaster	240	0	0
Wm. Pinch (plumber), James-street, Lancaster	269	7	0
Wm. Lawrence (painter), 20, King-street, Lancaster	61	0	0

12 other tenders.

LLANDAFF.—For the erection of 10 houses at Radyr, for the R.D.C.:—

	Per house.		
*Osborne Newcombe, Tredegar	£1,050	0	0
W. J. French, Pentyrch	1,094	13	6
J. Harry, Radyr	1,198	6	4

LLANELLY.—For the erection of boundary walls, for the Carmarthenshire C.C.—No tenders received.

LONDON.—For erection of 164 houses on Fairfield section of Hanging Wood-lane Estate, and 26 on East Mascalls site, for the Greenwich B.C.:—
*Guild of Builders, Ltd..... £185,253 19 3

LONDON.—For rebuilding Blundell-street School, Islington, for the L.C.C.:—

*John Willmott & Sons, Ltd., Hornsey	£79,300	0	
Allen Fairhead & Son, Enfield ..	79,622	0	
C. P. Roberts & Co., Ltd, Dalston	83,900	0	
J. & C. Bowyer, Ltd., Norwood	83,987	0	
G. Parker & Sons, Ltd., Peckham	86,836	0	
Brand, Pettit & Co., Tottenham	87,175	0	
Holliday & Greenwood, Ltd., Battersea	87,437	0	
Perry & Co. (Bow), Ltd., Bow..	88,269	0	
L. H. & R. Roberts, Clapton ..	88,470	0	
Wylie & Lochhead, Ltd., Bloomsbury	89,985	8	
A. Monk, Edmonton	89,540	0	

**Accepted with variations, reducing tender to £77,695.*

NORFOLK.—For the erection of cottages, for the Loddon and Clavering R.D.C. Messrs. Morgan & Buckingham, architects, 1, Upper King-street, Norwich. Quantities by the architects:—
Alpington (2 pairs):
Mr. Vincent, Berghapton, Norfolk £3,746 0
Topcroft and Hedenham (3 pairs):
Mr. Baldwin, Woodton 5,674 0
Thurton and Chedgrave (6 pairs):
Maurice Redgrave, Berghapton .. 10,796 8
All including one well for each pair of cottages.

OSSETT.—For erection of 28 Class "A" houses on the Horbury-road site, for the T.C.:—
*Ossett & Horbury Master Builders' Association £26,392

PENARTH.—For the erection of additions to the Penarth Boys' and Girls' Intermediate School, for the Glamorgan Education Committee. Mr. D. Pugh Jones, F.S.A., F.S.I., County Architect, Cardiff:—
*J. Beer & Son, Penarth £1,013 8 10

PLYMOUTH.—The Housing Commissioner has authorised the T.C. to enter into the following contract:—
*Endicott—26 houses, Type "A" at £885 per house. 26 houses Type "B" at £974 per house.

PLYMOUTH.—For extensions to the Central Police Office, for the T.C.:—
*Solomon & Renny £4,503 11

PLYMOUTH.—For lay-out of second sections of North Prospect housing site of 37 acres, for the T.C.:—
*J. Steer £56,698 15 10

PONTYPRIDD.—For the erection of extra classrooms at the Pontypridd Girls' Intermediate School, for the Glamorgan Education Committee. Mr. D. Pugh Jones, F.S.A., F.S.I., County Architect, Cardiff:—
*A. W. Julian, Pontypridd £2,946

SANDWICH.—For the erection of 100 houses at Sandwich, Kent, for the T.C. Mr. E. W. May, architect, 57, New-street, Sandwich :—

Contract No. 3 :

†Henry Boot & Sons, Ltd., London	£85,499	0	8
Trollope & Colls, Ltd., London	91,444	0	0

Contract No. 1 :

Turner & Watts, Sandwich	102,827	0	0
T. T. Denne, Walmer	103,172	0	0
G. H. Denne & Son, Deal	103,182	0	0
R. Merton Hughes, London	105,181	0	0
Peerless, Dennis & Co., Eastbourne	107,453	0	0
J. G. Parsons & Sons, Folkestone	108,000	0	0

SANDWICH.—For the erection of 100 houses, for the T.C. :—

*Henry Boot & Sons, Ltd..... £89,499 0 8

SHEFFIELD.—For erection of transformer substation in Charles-street, for the T.C. :—

*Reed & Bilborough £2,215 18 8

SHEFFIELD.—For painting work at Park Baths, for the T.C. :—

*F. A. Tinker & Sons, Sheffield..... £450

SHEFFIELD.—For foundation work required in connection with the erection of pipe line bridge at Jordan Dam, for the T.C. :—

*Holloway Bros. £290

STRETFORD.—For repaving portion of Upper Chorlton-road, for the U.D.C. :—

*New Bradshaws Asphalte Co... At 14s. 6d. per super yard.

STRETFORD.—For providing foundations for turbo-alternator at Electricity Works, for the U.D.C.:—

*Smith & Briggs, Ltd..... £3,180

TONDU (GLAM.).—For remodelling the Tondu Council School, for the Glamorgan Education Committee. Mr. D. Pugh Jones, F.S.A., F.S.I., County Architect, Cardiff :—

*John Makin, Cardiff £2,710 10

WAREHAM.—For the erection of houses, for the T.C. :—

*Pond & Walton....per pair £1,616 15 5

The Society of Engineers.

The following are the premium awards for papers read before or published by the Society of Engineers during the year 1920 :—The President's Gold Medal to Mr. R. H. Cunningham for his paper on "Some Engineering Work done by the 277th Railway Company (R.E.) in France and Belgium during the War"; Bessemer Premium to Mr. H. Banks for his paper on "Blackpool Sea Coast Defence Works"; a Society's Premium to Mr. Alfred S. E. Ackermann, B.Sc. (Eng.), for his paper on "Physical Properties of Clay"; Geen Premium (open only to members of Associated Societies) to Mr. A. E. A. Edwards for his paper on "Fuel Economy" (Wolverhampton and District Engineering Society). At an Extraordinary General Meeting of the Society on December 3 it was unanimously agreed that the entrance fees and subscriptions for Fellows and Members in the London district be increased to £3 3s. and £2 12s. 6d. for the respective classes, that for Fellows and Members in the United Kingdom outside a 20-mile radius the entrance fees be increased to £3 3s. and £2 12s. 6d. respectively, and the annual subscription to £2 2s. and £1 11s. 6d. respectively, and that the entrance fees and subscriptions of Associate Members and Associates over 21 years of age be increased to £1 11s. 6d., and to 10s. 6d. for Associates under 21 years of age.

Excess Profits Duty.

We have received a letter from Messrs. Fry & Morrison, of 418-422, Strand, W.C. 2, in which they state that the fact is often lost sight of that many firms will actually benefit by the Excess Profits Duty, as, owing to the slump in trade, they will have claims for repayment. The higher the percentage of duty, the greater the amount of deficiency to be recovered. "Many small traders," they state, "will have claims for the present year on account of the concession granted by Section 47 of the Finance Act, 1920. An example of this concession is here illustrated :—'X' is a trader with a pre-war profits standard of £500. Let us suppose that up to 1919 he has paid Excess Profits Duty. During the year 1920 he makes a profit of £1,000. The following would be the sum recoverable for the accounting period 1920 :—

Profit for year 1920 ..		£1,000
Pre-War Standard ..	£500	
Statutory Allowance ..	£200	
Special Allowance under Sec. 47	£600	£1,300
		£300
Deficiency recoverable at 60 per cent.		£180

"It will thus be seen that many small firms will benefit by the present high rate of Excess Profits Duty."

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NEW YEAR RESOLUTIONS.

1920 Has Nearly Run Its Course.

IN a few days 1921 will be with us, and with its advent comes the period when we all begin with a brand new set of resolutions. How long these intentions will endure it is difficult to determine: that depends on the strength of character possessed by the individual concerned. Nevertheless, if no good results from the formulation of those projected kind dispositions, be it ever so fleeting, the world at large is better, from the temporary restraint which has resulted from the endeavour to get out of the rut, which the end of 1920 found us in.

Have you been employing MOTOR TRANSPORT during 1920? If not, you are behind the times. That is one rut you can get out of, and with lasting benefit accruing from the change.

We are in a rut with the balance of our 1920 stock which we intend to sell at Auction Sale prices before the end of the year, and if you come along now you will get the benefit.

LORRIES, VANS AND CARS, open and closed.—You can have your choice and we defy anyone in the Motor trade to beat our prices. When we quote you compare our figures with other houses in the trade, and we stand or fall as the consequence, if you point out anyone else from whom you can buy cheaper or better.

Our terms are cash or deferred, to suit anyone. Our advice is yours for the asking.

Ring Putney 1698, or communicate with Messrs. Allan Taylor & Co., 126-128, High-street, Wandsworth, S.W. 18, before Christmas and seize your 1921 opportunity by the forelock, so that when 1921 is born you will be one of the early ones, with a good permanent resolution which will produce lasting benefit which will carry you through the New Year and many others to follow.—[ADVT.]

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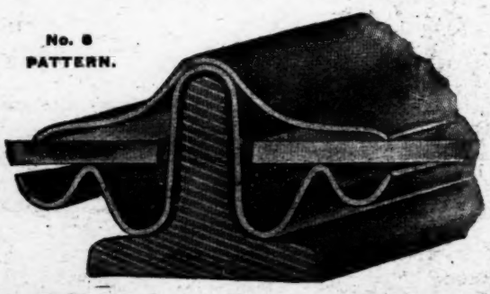

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